

# AMERICAN ARTISAN

NOVEMBER 1957

..The Magazine of


RESIDENTIAL AIR CONDITIONING

WARM AIR HEATING • SHEET METAL CONTRACTING

IS SHEET METAL inventory worth  
the cost of possession? ..... 75

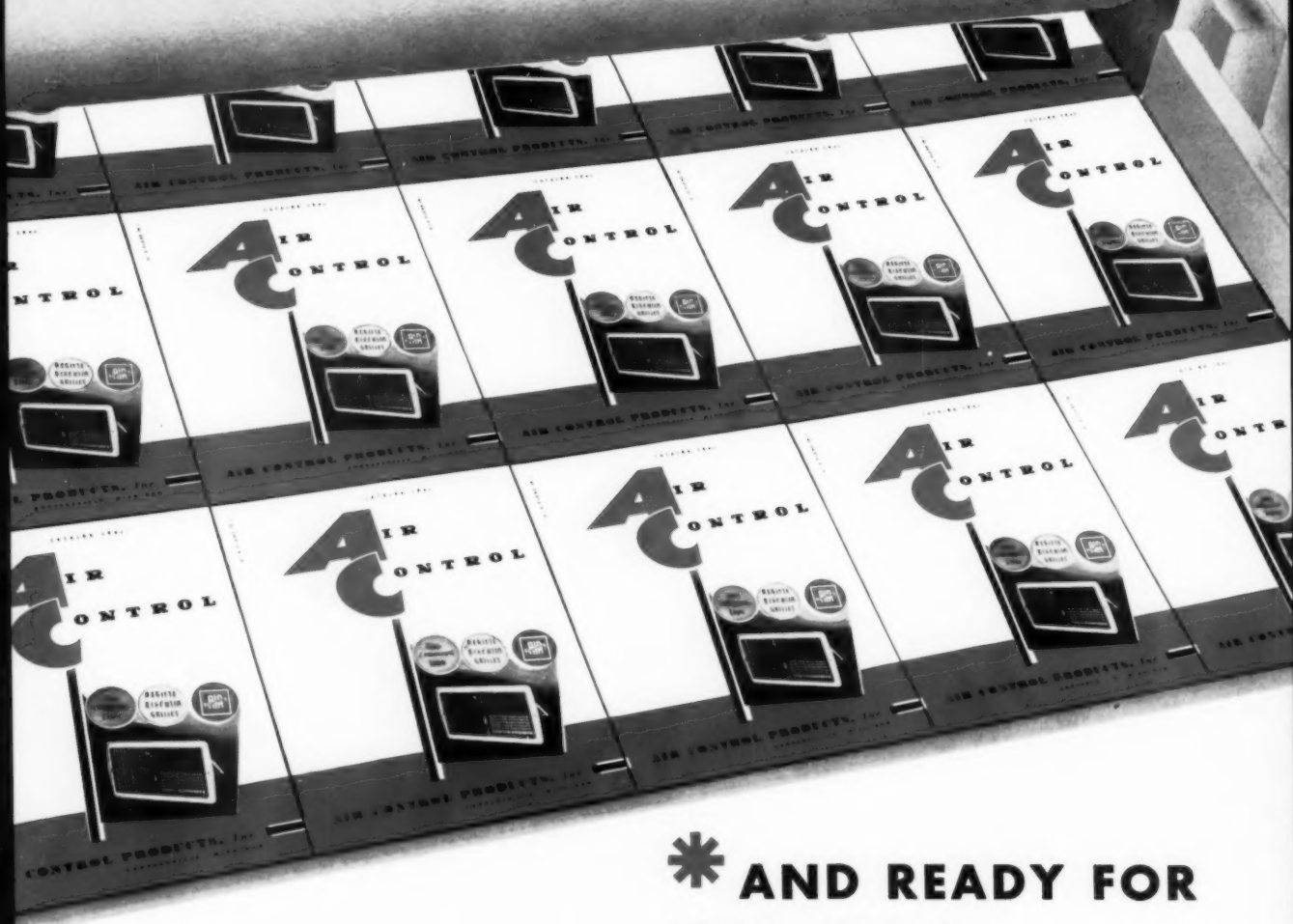
HOW TO BALANCE air distribution  
in a cooling system ..... 60

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ATMOSPHERE OF QUALITY in the  
showroom makes dealer's pros-  
pects comfort-conscious and puts  
price in the background .... 54

# JUST OFF THE PRESS! \* AIR CONTROL'S '58 CATALOG



Pick up your copy and thumb through its pages.

First, you're impressed with the striking use of full color to show clearly the advanced styling of Air Control registers, grilles and diffusers.

Next, you're pleased with the data given for each product — selection charts, engineering and performance specs, installation tips. You recognize the time and money to be saved in planning, ordering, installing.

And finally, you realize this is more than "just a catalog". It is a genuinely valuable SALES AID. You can use it to SHOW your customers the outstanding advantages of Air Control products. You'll sell faster, easier and without "misunderstandings" to mar your profit picture.

Your jobber is expecting his supply now. See him or write to us.

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AND PROFIT BUILDER

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CITY \_\_\_\_\_ STATE \_\_\_\_\_

**AIR CONTROL PRODUCTS, Inc.** 157 CENTER ST.  
COOPERSVILLE, MICHIGAN



HOW SUNDSTRAND FUEL UNITS BACK UP YOUR BURNERS

# Foolproof installation



Installation of Sundstrand Fuel Units is easy and familiar to servicemen everywhere... hasn't changed in 16 years of improvements!

Performance of Sundstrand Fuel Units steadily improves as the industry's leading engineers keep Sundstrand always *first in fuel units*. But placement of the ports, function of the bypass plug, simple screw-driver adjustment for pressures from 75 to 150 psi, and the procedures for single-pipe or two-pipe installations, have been carefully preserved *unchanged since 1941!* Add to this the fact that substantially more Sundstrands are specified than any other fuel unit, and you have another *important way* Sundstrand backs up your oil burners. Just about any serviceman anywhere can install and service any Sundstrand single- or two-stage model, quickly, easily, and properly. It's one of the best assurances you can have that your Sundstrand-equipped burners will consistently perform "as specified"!



## SUNDSTRAND HYDRAULIC DIVISION

of Sundstrand Machine Tool Co., 2210 Harrison Ave., Rockford, Ill.—Eastern Sales Office: 89 Summit Ave., Summit, N. J. Made in Canada by John Inglis, Ltd., 14 Strachan Ave., Toronto; in Sweden by Sundstrand Hydraulic AB Stockholm; in France by R. S. Stokvis, et Fils, S. A., 20-22 Rue Des Petits-Hôtels.

# AMERICAN ARTISAN

NOVEMBER 1957

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## RESIDENTIAL AIR CONDITIONING

### WARM AIR HEATING

### SHEET METAL CONTRACTING

Merged with American Artisan are "Warm Air Heating" and "Furnaces and Sheet Metals"

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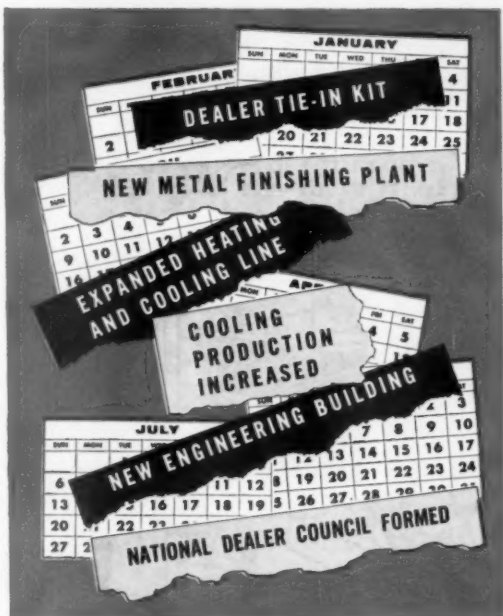
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**MUELLER CLIMATROL SALES CLIP**

... CLIMATE CONTROL FOR HEALTHFUL LIVING

# Mueller Climatrol Centennial packs big pay-off for dealers



It's been the biggest birthday celebration in heating and cooling history! National magazines and newspapers devoted hundreds of stories to the Mueller Climatrol 100-year anniversary, increasing recognition and prestige of the company and its dealers.

The year opened with full use of new paint spray facilities, giving Mueller dealers an exclusive *plus* in eye appeal and rust resistance. Continuing product progress was seen throughout the year. New units were announced to lead the industry's most complete line.

Production facilities for summer cooling were enlarged 50% . . . the latest techniques used to assure best service to Mueller customers now and in the future. The new engineering center, opened during 1957, means not only leadership in product development but continuation of advanced basic research in human health and comfort.

That's not all. Cooling schools . . . a National Dealer Council (see below) . . . new promotional aids and a host of other helps put Mueller Climatrol dealers in the forefront of the industry. And 1958 will bring even *more* support!

## Mueller Climatrol calls second meeting of unique National Dealer Council

"How much should I spend for promotion?" "What's the easiest way to finance?" Pertinent problems facing today's dealers will be aired and answered when Mueller Climatrol holds the second National Dealer Council Meeting late in November.

### NEW IDEA

The council was recently formed by Mueller Climatrol as a "two-way street of information" between the company and its dealers. Eight dealers were selected as a national cross-section

to exchange opinions on design, product trends, promotion, sales management, traffic and related subjects. They in turn are able to draw on the judgment of top Mueller management.

### CONTINUING PROGRAM

Mueller Climatrol will continue this series with other dealers participating on a rotative basis. The mutual understanding and solving of problems through the dealer council will benefit all phases of our industry—manufacturer, wholesaler and dealer alike.



Members of the National Dealer Council are shown with Mueller Executive Vice-President Frank J. Nunlist (center) after receiving certificates naming them charter members.

### See You at the Convention!

You don't want to miss Mueller Climatrol's big exhibit at the Air Conditioning and Refrigeration Exposition, Chicago—November 18-21—Booth 506. You'll meet some of the top men from Mueller's sales staff—get a preview peek at the big things ahead for '58.

## Mueller Climatrol®

Division of Worthington Corporation  
2030 W. Oklahoma Ave., Milwaukee 1, Wisconsin  
In Canada: 2490 Bloor Street, Toronto 9, Ontario

## the editor's notebook

### Thumbing Through This Month's Artisan

... we apply the "use the user" principle with a dealer who goes all out to *Cultivate Customers' Aid in Finding New Prospects*, by offering them cash rewards for sales leads. We meet a dealer who believes in consistency of promotion in the cash award program and all his other merchandising efforts. We note the proof of his convictions in a return of 46 sales for a single mailing of the cash award offer. We are also told of other effective sales boosters such as continuous newspaper advertising, skillful sales presentations and personal promotion of cooling.

### Differentials

... and we accompany the NWAHACA mobile lab to *Study Temperature Differentials for Small Duct, Bypass System* in the first of a new series of reports on small duct heating systems. This month we investigate a furnace bypass system with an extended plenum duct system feeding twelve 4 in. floor diffusers. The amount of return air which bypasses the heat exchanger is regulated by face and bypass dampers which are controlled by a room thermostat. The test shows ceiling to floor temperatures to be uniform upstairs but very uneven in the basement. Some of the reasons become evident as the thorough test progresses.

### Balancing

... we find out *How To Balance a Cooling Air Distribution System* from S. W. Reid, who tells us, through explicit instructions

**INCREASE EQUIPMENT SALES**  
...cut down delivery costs

Sentry ODF® Tank Gauge tells drivers what they want to know  
*at point of delivery!*

"THAT LITTLE SENTRY GAUGE SURE SAVES US BOTH A LOT OF TROUBLE!"

TELLS WHEN OIL IS NEEDED

\*Oil Dealer's Friend

... HOW MUCH IS NEEDED

... WHEN TO STOP FILLING

Sentry "ODF" remote reading gauge

## ONLY Sentry OFFERS SUCH A COMPLETE LINE OF DIRECT AND REMOTE READING TANK GAUGES

Above is SENTRY'S newest — The ODF At-A-Glance tank gauge that's setting new records in building sales and customer goodwill. Located outside of building at fill pipe, this easy-to-read weather-proof gauge shows the exact oil level in the indoor tank. Saves costly time consuming trips to basement, unnecessary hose unreeling and eliminates over-flow. Permits delivery without disturbing customer.

Other constant-register SENTRY gauges include combination tank and remote reading, barrel gauges, direct reading, and gauges for stove and space heater tank. Write today for full information about these fast moving business getters. Advertising aids available.



**KRUEGER Sentry GAUGES**  
GREEN BAY • WISCONSIN

## the editor's notebook

(Continued)

and diagrams, how to measure air with four devices: 1) calibrated equipment, 2) the Pitot tube, 3) a propeller type anemometer, and 4) a deflecting vane anemometer or velometer. We are advised to sketch the system and list velocities and velocity pressures found by the methods above, then to follow a fixed procedure of checking, estimating total air quantity, and adjusting air flow to branch ducts and outlets, and finally, performing the final check for maximum comfort conditions.

### Gutter

... and we see how a *Lead Gutter Stops Leakage in Underground Terminal* which suffered a seriously soiled ceiling when existing ducts deteriorated under constant exposure from snow-melting salt which infiltrated from the street above into the drainage system through expansion joints. In spite of its comparative high first cost, lead was specified for permanent gutters which were encased in a plastered soffit after welding all the joints.

### Dust Costs Public \$2 Billion Annually

THE IMPORTANCE of air filtration is growing each year. The atmosphere is seemingly becoming more contaminated as industrial processes increase in activity. Information released by Mitchell Manufacturing Co., based on a "fine dust survey" by the Robert Taft Sanitary Engineering Center of the U. S. Public Health Service and covering a cubic mile area beginning approximately 100 ft above street-level, indi-



Need 70 Feet of Pittsburgh Lock per minute?

33,600 Feet per day?

168,000 Feet  
per week?



Your weekly requirements for Pittsburgh Lock may never reach 168,000 feet, but this high production rate possible with the Lockformer Super-Speed assures that you will not tie up expensive labor any longer than necessary. The Lockformer has been engineered and built to turn out this kind of production week after week, all year long.

There are over 30,000 machines — in thousands of shops—proving the dependability of the Lockformer to roll Pittsburghs year after year with no repair or maintenance expense. Many Lockformers delivered almost 20 years ago are *still* going strong.

Find out today how the Lockformer can cut over-all fabrication costs in half... how it can earn *extra* profits for you.



One man with a Lockformer makes more Pittsburgh Locks than 16 men with 8 brakes

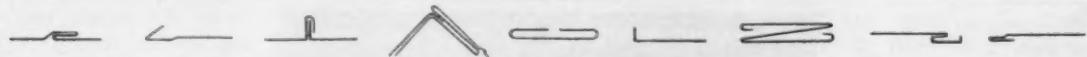
**LOCKFORMER®**

*time saving,  
money making equipment*



Write for **FREE**  
Lockformer  
Catalog

Manufactured by  
**The Lockformer Co.**  
4615 W. ROOSEVELT ROAD  
CHICAGO 50, ILLINOIS



## the editor's notebook

(Continued)

cates that Detroit has 153 tons of particulate matter in every cubic mile, Charleston, 128 tons; Chicago, 124 tons; Los Angeles, 118 tons; New York, 108 tons; Philadelphia, 83 tons; Cincinnati, 78 tons; Kansas City, 65 tons; Portland, 64 tons; Atlanta, 61 tons; Washington, 58 tons; Houston, 57 tons; Minneapolis, 53 tons; Fort Worth, 49 tons; San Francisco, 46 tons; and Salt Lake City, 24 tons.

This crushing dust load costs the American public more than \$2,000,000,000 annually as it filters into homes, sending cleaning and repair bills sky-rocketing and is breathed into lungs, endangering health.

This information points out the importance of adequate attention being given to the filtering equipment used in central heating and cooling systems and should prove a worthwhile sales aid.

### Cooling Sales Tips for Small Commercial Jobs

THE SMALL commercial applications for summer air conditioning continue to grow in volume. It seems that when a small neighborhood store installs a cooling system, the others vying for the same consumer patronage must soon order summer air conditioning or go out of business. This attitude of consumer preference is also shown by employees of small businesses scattered around a city. A recent survey conducted by Carrier Corp. has disclosed that sales and office staff attitudes toward their work remain consistently high through the hottest weather as a result of air conditioning.

Employee turnover has been reduced in small de-

## NOW there are 14 Vaporite MODELS

... a size and type Humidifier for every furnace installation.

### EVERY MODEL TESTED AND PROVED

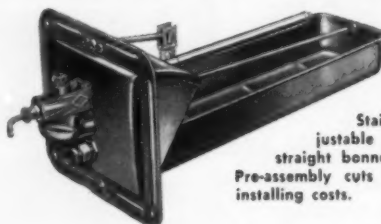


**SERIES 555**  
Fits any straight side  
warm air furnace.

Corrosion resistant, stainless steel vapor pan 4" x 15". Completely assembled for quick and easy installation.

New copper overflow on Model 555C.

- No extras to buy
- No parts to assemble
- No extra holes to cut
- No tricky mounting



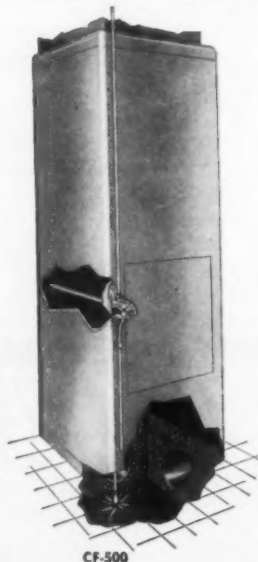
**SERIES 577**  
Stainless steel. Adjustable to sloping or straight bonnet furnaces. Pre-assembly cuts labor time and installing costs.

### EVERY MODEL WITH NEW SENSITIVE THERMOSTAT CONTROL TO ASSURE BALANCED HUMIDITY

### LOW COST

#### FIELD-TESTED COUNTERFLOW STYLE

- Designed especially for basementless houses with perimeter heating.
- Complete assemblies for furnaces with concrete floor plenums or with crawl space plenums.
- Installs in minute on exterior of furnace casing. All parts furnished.



CF-500

WRITE FOR CATALOG AA-11

**AUTOMATIC HUMIDIFIER CO., Cedar Falls, Iowa.**

## the editor's notebook

(Continued)

partment stores, since employees who would normally resign during the summer months tended to remain at work in an air conditioned building.

These same stores noted sharp business increases for the summer months and attributed the rising sales curve to the air conditioning.

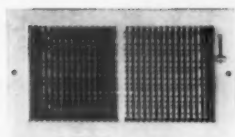
A small department store in the northeast reported a substantial 35.7 per cent rise in summer sales upon completion of its air conditioning system.

This same company said fabric soilage dropped off significantly after the system's installation. Prior to the air conditioning, dust and dirt from the street settled on exposed merchandise and was ground into the cloth as perspiring customers and sales people handled it.

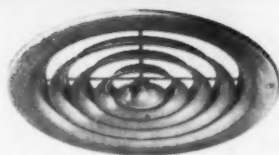
Both of these problems, management stated, were solved by air conditioning, since the system filters and dehumidifies air besides lowering its temperature. Because of this, dust and dirt quantities are reduced, and the dry air prevents perspiration from forming on the hands of those examining merchandise.

Whereas prior to air conditioning, "try-ons" and sales of fall and winter clothing were at a minimum during the hot weather months, today they account for a whole new chapter on the plus side of the ledger.

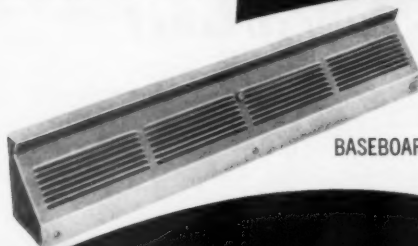
Carrier's survey indicates that business increases averaging 30 per cent are possible through air conditioning; summer slumps are reduced; new customers are attracted; competitive advantages over non-air conditioned stores are enjoyed; cleaning and redecorating needs are cut; hot-weather try-ons are en-



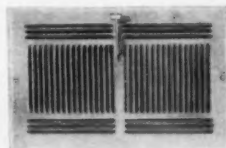
STANDARD 600 SERIES  
WALL AND BASEBOARD  
REGISTERS



STANDARD CEILING AIR DIFFUSERS



STANDARD B SERIES  
PERIMETER  
BASEBOARD DIFFUSERS



STANDARD 551  
PERIMETER WALL AND  
BASEBOARD REGISTERS

STANDARD PH SERIES



PERIMETER FLOOR REGISTERS

## 5 ways to guarantee comfort in two-way systems!

- easy installation
- trouble-free operation
- the right air distribution for every conditioned space
- for residential, commercial, and industrial buildings
- no blasts, no hot spots, no cold corners



Mail  
coupon  
for  
complete line  
catalog!

# STANDARD

## REGISTERS & GRILLES

... comfort plus style at attractive prices!

**STANDARD STAMPING  
& PERFORATING CO.**  
3137 W. 49th Place, Chicago 32, Ill.  
Please send me your new free catalog.

Name \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

## the editor's notebook

(Continued)

couraged, particularly in suits and coats; higher caliber employees are attracted; sales people are alert and more pleasant during the summer months; value of the building is increased; merchandise is protected and spoilage is lowered.

These are points that can be used effectively by salesmen in their presentation and closing statements.

### What's the Best Way To Pay Your Salesmen?

CONFIRMATION of the commission method of payment for salesmen as the best means of compensation for this type of employee has been brought out by a recent survey conducted by American Management Association. The survey found that salesmen who receive bonuses and commissions are paid lower salaries than are salesmen on salary alone, but they come out better in terms of total compensation. Salesmen are on much the same basis as other employees so far as pension and group insurance plans are concerned.

### More Heating Promotion Urged in Model Homes

THE FOCUS of consumer product promotion by building equipment manufacturers should be on the model house, according to homebuilders who attended the "Builders' Buying Habits" conference held recently at the National Housing Center.

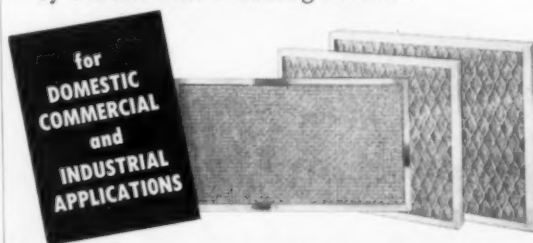
Eighty homebuilders and manufacturers of building equipment and products convened at the center for the meeting, which was the second on this subject sponsored by the housing center and held under the direction

## BEST BET for peak sales faster turnover • easier servicing!

Here's the filter that practically *guarantees* fast-action, "register-ringing" filter merchandising! Features that *help* you sell, *plus* an established demand, make it a real volume-builder.

You'll *sell* more because the market is already primed and educated on the economy and superior efficiency of new *permanent* filters. You'll make more because the new "A-lum-O-Aire" pricing policy lets you realize a better return while you're meeting and *beating* competition!

What's more, "A-lum-O-Aire" is a natural tie-in with your present service operations. You gain better control of your service accounts — and add new ones as you go along! Better yet, you save time, effort and expensive material costs required by out-dated filter cleaning methods.



Sounds fine, so far! But what about "minimum quantities," *quotas* and stock requirements? *That's* where "A-lum-O-Aire" tops them all! You *buy* only what you can *sell* and you stock only what you *NEED*! And, you can forget *sizing* problems.

Safe, clean and economical, "A-lum-O-Aire" needs no messy oils or adhesives to catch dirt, dust or lint particles. Revolutionary "A-lum-O" Aluminum Wool does *ALL* the filtering; saves work and worry — washes clean in a jiffy with cold water. Rustproof and fireproof. Approved by Underwriters' (Class 1). Costs less per clean filter than any other and they can be cleaned as often as necessary without sacrifice of efficiency.

Attention Distributors: Exclusive territories in several selected areas still available. Write for details, today!

**Electronic Engineering Co.**  
METAL WOOL DIVISION  
Dept. A-47  
1880 Clifton Avenue Springfield, Ohio

## the editor's notebook

(Continued)

of the National Association of Home Builders.

"The model house is one of the best sources for market research," stated Harold D. Sarshik, Haddonfield, N. J. builder, and chairman of the meeting. "This is the place where the builder gets a positive reaction to the products he has built into the house. Prospective homebuyers quickly and frankly show whether a particular brand of product appeals to them or not."

During the all-day session, which was devoted primarily to sales efforts, advertising materials, and other promotion programs designed for homebuilders, the builders also agreed that manufacturers of building products should place more stress in their advertising on the desirability of owning a new home containing the latest features for comfort and livability.

"Homebuyers do not purchase a house because of any one single factor," said Mr. Sarshik. "Rather, they are more effectively sold a complete package of comfort, security, and convenience."

### Sees Advertising As 'Irresistible Force'

I ENJOYED reading an item in the recent Special Anniversary Issue of the Comfort Times, the house organ of Bryant O'Connor Co., Inc. of Wichita, Kans. This distributor's point of view on the benefit of local level advertising is very well put. Here is what Joe O'Connor, the company owner, has to say:

"When Hell Gate bridge in New York was being built, engineers found a heavily loaded barge sunk in the river bed exactly where a main column was to go.

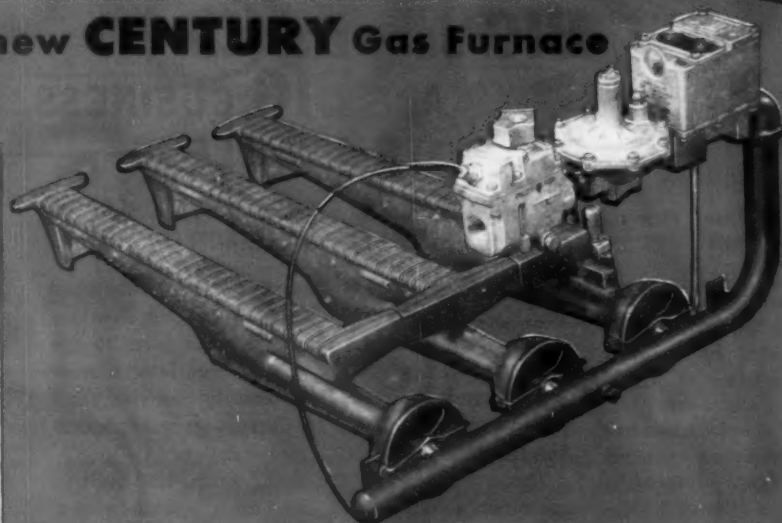


*She has features you appreciate...*

## You'll also appreciate the **HEAVY CAST IRON MILLED SLOTTED-PORT BURNER**



...in the new **CENTURY** Gas Furnace



- One-piece burner cuts your service calls
- Adaptable for all types of gases
- Pilot and thermocouple bolted into correct position... controls pre-tested
- Quiet on the start and during operation

There are no ribbon inserts to loosen with expansion and contraction. It burns an efficient, short blue flame. The primary air may be set without tools. Yes, this burner is but one of 30 Century advantages that reduce installation and service time... assure better performance... please your customers.

For example, every Century gas furnace comes completely set up and wired for operation in capacities from 80,000 to 160,000 btu input. The heating element is edge welded and guaranteed for 10 years. Optional direct or belt-driven blowers are *properly sized for summer cooling*. There's much more to tell about this all new gas heating line and its matched cooling units. Write today to:

**CENTURY ENGINEERING CORPORATION**  
Cedar Rapids, Iowa

You can count on

**Century**  
HEATING-COOLING

for comfort

## the editor's notebook

(Continued)

"The barge resisted all efforts to lift it. When engineers were stymied, one suddenly thought of the power of the tide. At the next low tide, they moved a flatboat above the spot and made it fast to the barge with many strong cables.

"When the tide came in, its mighty swelling power floated the barge.

"This story, it seems to me, describes the power of advertising. Slowly but irresistibly, it overcomes sales obstacles. It permeates. It applies an essential leverage which must, in the end, steadily increase consumer acceptance."

### Number of Small Firms At Record High

THE IMPORTANCE of the small business firm is brought out by the accumulation of data compiled by the National Association of Manufacturers. Firms with less than 100 employees numbered 2,920,000 in 1926. In 1936 this figure advanced to 3,039,000, in 1946 to 3,452,000 and in 1956 to 4,209,000. This information was obtained from the U. S. Department of Commerce.

### Dealers Find Community Services Build Sales

PUBLIC relations activities of companies are becoming more and more important. The dealer who directs his efforts in this direction can expect to note favorable response from customers, prospects and competitors. Methods of achieving the best results have been found to come from company open houses and tours, news releases, and company advertising in the local newspapers. Encouraging com-



## BIG BLOWERS ARE BIG BUSINESS WITH PEERLESS

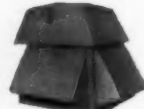
QUIET! TROUBLE-FREE! DEPENDABLE!  
HEAVY DUTY! GUARANTEED!

Versatility in size, application, and engineering has always been a Peerless strong point. Peerless builds its own motors and matches them to the specified blower requirements. Peerless blower frames and housings are usually heavier than any competitive products. Result—a quiet, vibration-free unit.

These are not "off-the-shelf" units, but built to customer rotation and discharge specifications. Each one receives 100% inspection before it leaves the Peerless factory. Each unit is built to NAFM standards. Motors are built to NEMA standards. Each unit is ready for operation when received at the installation site.



Write Today for Bulletins SDA-220, SDA-200 and SDA-160  
A COMPLETE LINE OF AIR MOVING EQUIPMENT



**Peerless  
Electric**

Charter Member of The Air Moving and  
Conditioning Association, Inc.

FAN AND BLOWER DIVISION

**THE Peerless Electric® COMPANY**

FANS • BLOWERS • MOTORS • ELECTRONIC EQUIPMENT  
1409 W. MARKET ST. • WARREN, OHIO

## the editor's notebook

(Continued)

pany employees to take an active part in civic affairs pays excellent dividends.

Among the less costly community services are "furnishing hot coffee to the city fire department at a major fire, a telephone answering service which gives callers a community service message as well as the correct time, distributing a map of new sections of the city, financial forums for men and women, and publishing a pictorial history of the community."

All of these activities have been tried by dealers and found to be valuable business aids.

### Here's Effective Way To Spread Knowledge

I AM ALWAYS pleased to receive letters from our subscribers, especially when they request copies of reprint booklets on certain subjects, but I enjoyed the request of C. Albert Matthews, Easton, Md., more than usual. Mr. Matthews perceived a way to spread knowledge throughout his organization in a very effective manner as indicated in his letter to me.

"Today we received your copy of Residential Cooling. This is indeed well done and should make a ready reference for our business. In fact, four of our men wish a copy.

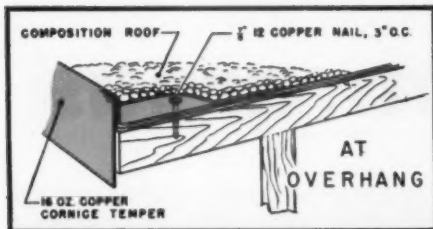
"Would you please send us four copies of Correct Practice in Residential Cooling, Volume 2, How to Solve Special Problems in Air Conditioning of Homes, reprinted from American Artisan.

"Please bill us for these copies and thank you for a job well done."

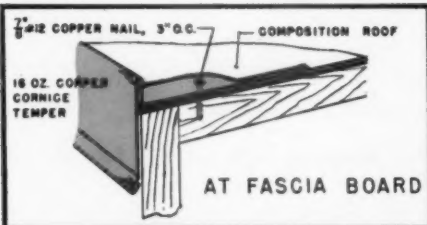
*Clyde M. Barnes*

EDITOR

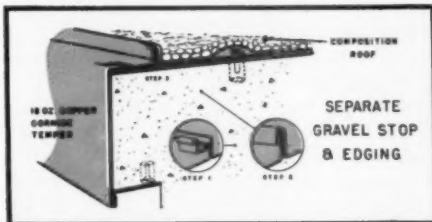
# Roof edgings of copper give lasting protection



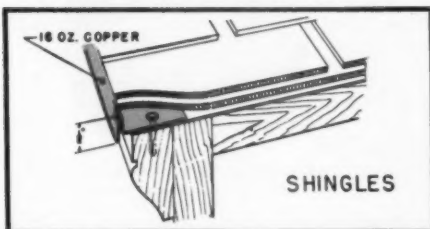
Copper edging has a 4" flashing flange, a 3/4" gravel stop, and a drip edge extending at least 1/4" below sheathing.



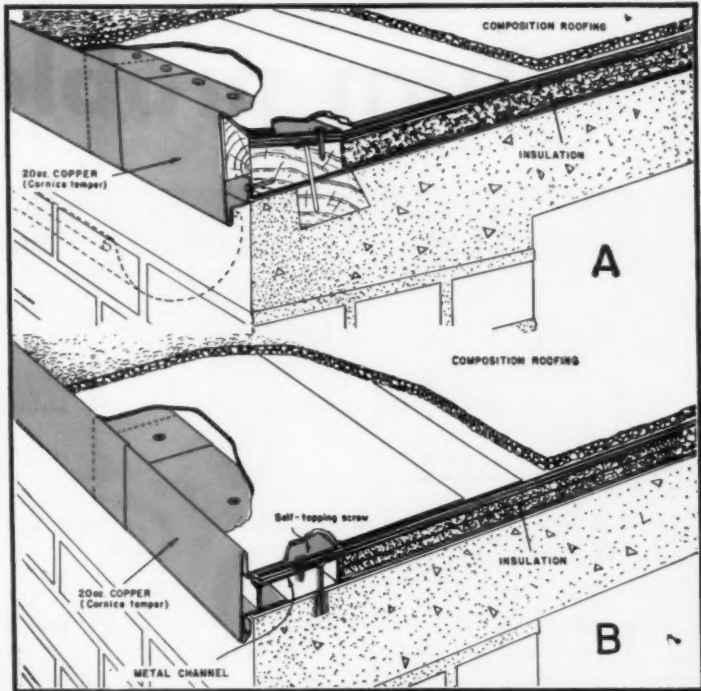
Same as edge for overhang, except that outer face is deeper for neat appearance and bottom edge is turned back to form a hem, canted outward to serve as a drip.



Edging for built-up composition roofing on a concrete deck, designed to show minimum of waviness or buckling. Facing strip is free to slide because of clinch lock seam at top and bottom. Standing seam at top is rolled toward outside and serves as gravel stop. Bottom seam is simple clinch lock joining fascia with stiffening strip for trim appearance and to provide a drip edge.



This edge for shingle roofs serves as a guide and assures alignment of shingles at end of every slope—protects the exposed edges of shingles.



Edges for insulated built-up roofs. There are two problems. One is a firm and secure fastening for the metal so that it will retain its bond with built-up roofing. The other is construction to prevent horizontal shear at the margin of the relatively soft cellular insulating material. Figure A shows how to meet these problems with wood nailers—Figure B, with incombustible metal channels.

**All roofing materials**, whether for flat or steep roofs, need edgings and flashings. The more durable edgings and flashings are of metal. And the preferred metal is copper—because of its lasting qualities, easy workability, weather-tight performance when properly installed.

The drawings on this page illustrate good sheet copper practice for the more common types of roof construction. For full details and suggested specifications, send in the coupon below for a copy of The American Brass Company's "Modern Sheet Copper Practices."

**Look for the Anaconda marking.** Every sheet of Anaconda roofing copper is now marked with the weight and temper and the name, "Anaconda." To protect your reputation and make your job easier, insist on Anaconda quality Sheet Copper.

0728

For better  
sheet metal work  
use

**ANACONDA®**  
SHEET COPPER

Made by The American Brass Company



The American Brass Company  
Waterbury 20, Conn.

Please send me my copy of Publication C-1, "Modern Sheet Copper Practices."

NAME.....

COMPANY.....

STREET.....

CITY.....ZONE.....STATE.....

Please check type of business

☐ Architect ☐ Builder ☐ Sheet Metal Contractor

*With Honeywell Zone Rebalancing—*

# Turn problem areas

*Here are the 6 big problem areas with one answer...*

## *Honeywell Zone Rebalancing*

1. Split-level homes with convection between floors
2. Finished basements
3. Spread-out floor plan with exposure differences
4. Living and sleeping areas
5. Large picture windows with variable heat gain and loss
6. Rooms over a garage or unheated areas

**H**ERE'S AN inexpensive yet unique comfort feature that will enable you to realize an extra profit margin on every job.

Honeywell Zone Rebalancing means dividing the home into two or more comfort areas. The thermostat in each area continually adjusts the distribution of heating or cooling to maintain the exact tempera-

ture requirement of each individual zone.

This modulating system works with all types of central heating-cooling systems to get maximum comfort and efficiency out of your heating-cooling units. You'll be way ahead in customer satisfaction. And you'll be ahead in profits because you are offering a more complete heating-cooling job.

**Choose from the complete Honeywell line of thermostats. Here are three popular examples**



*T86 for heating*

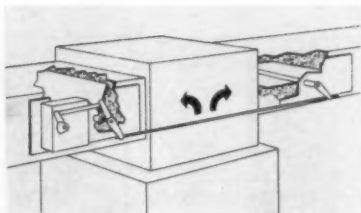


*T87 for heating-cooling*

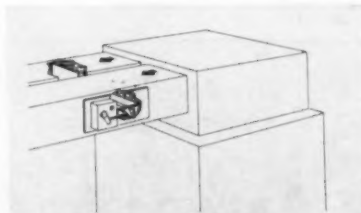


*Electric Clock Thermostat for completely automatic control*

**As a dealer,  
your sales potential  
with this  
economy priced,  
easy-to-sell system,  
is enormous.**



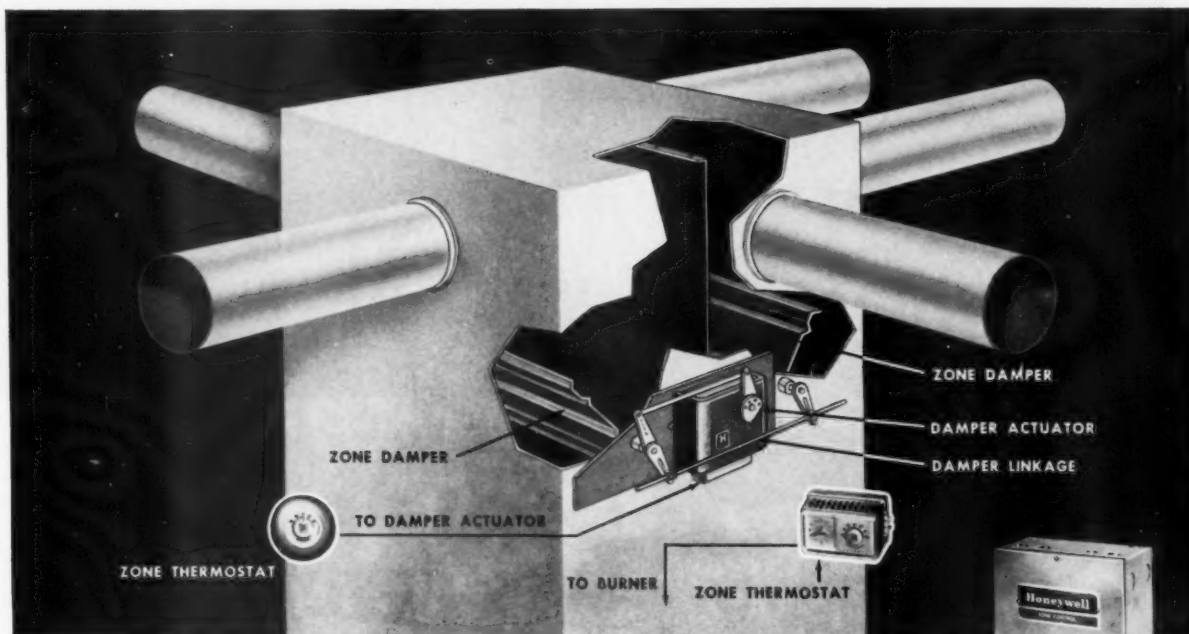
*Extended plenum duct system showing linkage for two zones using only one motor.*



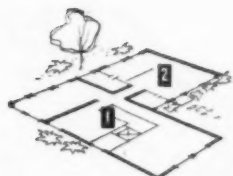
*Parallel duct system, a typical installation, showing both dampers on a single shaft.*



# into profit areas



**W407 ZONE WIRING PANEL**  
for heating-cooling systems, easily  
and simply inter-connects all controls.



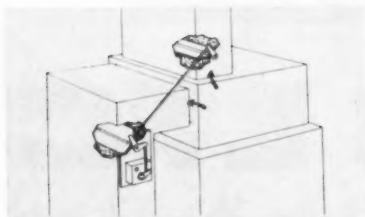
Shown above, is a split plenum with the Honeywell 2-Zone Balancing system. One actuator controls the dampers to two zones.

You can offer zone rebalancing in two or more zones—to fit any need. Honeywell Zone Rebalancing will work with forced air heating-cooling installations in all types of standard or custom homes.

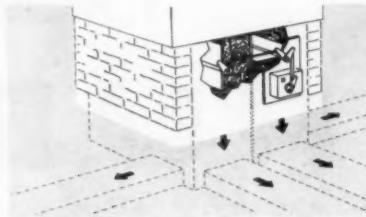
Key to the whole system is a Honeywell

*Modulating Damper Actuator.* This actuator operates dampers in the zone ducts to continuously increase or decrease the heated or cooled air volume as called for by the thermostats.

For further information on the new Honeywell Warm Air Zone Rebalancing System or for full and complete details on wet heat zoning equipment, call your local Honeywell office. Or write direct to Minneapolis-Honeywell, Dept. AA-11-172, Minneapolis 8, Minn.



*Split-level* home can use this duct damper and linkage arrangement with one motor.

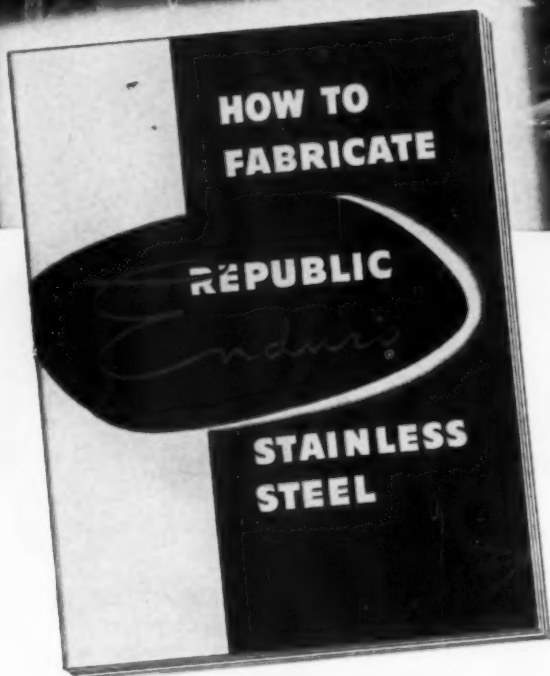


*Counter-flow furnace* can utilize this arrangement for forced warm air perimeter heating.

## Honeywell



*First in Controls*



## Here are the TO SPECIALIZE IN

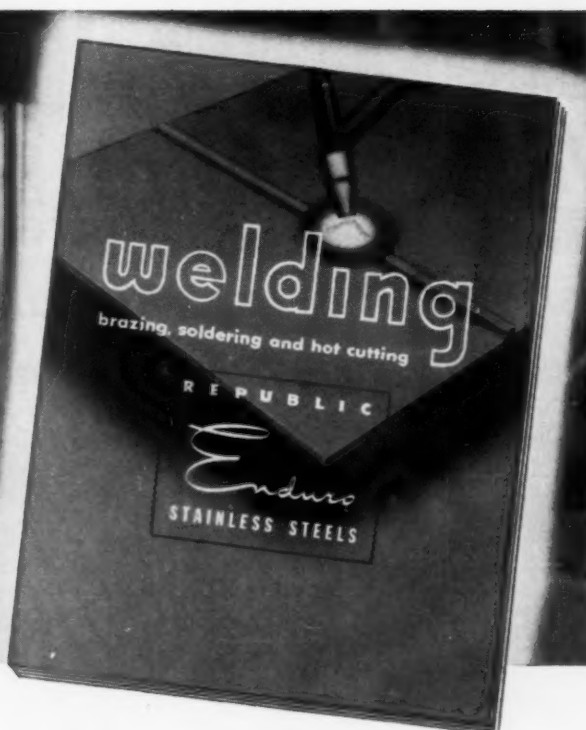
**ROOF-DRAINAGE JOBS ARE PROFITABLE** when you install ENDURO Stainless Steel gutters and downspouts. Both your builder and home owner prospects will listen when you talk rust- and corrosion-resistance, little or no maintenance, lower end-cost. Installation is simple, soldering is easy and requires no special tools. Mail the coupon for more information on the complete line of roof drainage products plus all accessories.



# REPUBLIC



*World's Widest Range of Standard Steels*



## fabricating tips you need HIGH PROFIT STAINLESS STEEL

All the how-to-do-it information you need to cash in on the tremendous profit potential waiting for stainless steel fabricators, is contained in these two Republic books. Both were written especially for sheet metal contractors.

"How to Fabricate Republic ENDURO Stainless Steel", contains 36 pages of detailed, easy-to-follow text on all phases of stainless steel fabrication. Photographs show you step-by-step procedure.

"Welding Republic ENDURO Stainless Steel", is a 54-page, 2-color book containing approved and complete technical data on welding, brazing, soldering, and hot cutting of stainless steel.

Photographs and drawings make procedures easy to understand.

You'll find ENDURO is easy to fabricate on your present equipment. It's been "the sheet-metal-man's metal" for over a quarter of a century. ENDURO's ability to withstand the most severe service requirements makes it ideal for a host of uses from ductwork to diners, from siding to steeples.

Contact your local ENDURO distributor and get started in high profit, stainless steel fabrication. And mail the coupon for your two free books on fabricating and welding ENDURO Stainless Steel.

# STEEL

*and Steel Products*

### REPUBLIC STEEL CORPORATION

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3162 EAST 45th STREET • CLEVELAND 27, OHIO

Please send me free copies of:

- ☐ How to Fabricate ENDURO® Stainless Steel
- ☐ Welding ENDURO Stainless Steel
- ☐ Send more information on ENDURO Roof Drainage Products.

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

# Tecumseh

## engineering

# VISION

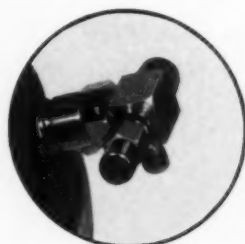
offers you a

**complete line for year-around air conditioning,  
priced to expand your market!**

By continuous improvement and expansion, Tecumseh hermetic compressors today represent the most complete and up to date line in the industry. And as an example of our constant cost reduction program, the Tecumseh 3 HP single phase compressor shows an overall price reduction of 24% since 1953 in spite of continually rising prices.

Tecumseh compressors effectively utilize suction gas to dissipate motor heat — run smoother and quieter — deliver full capacity at 90° ambient with a 45° coil . . . continue to cool even at 120° ambient or at 90% of rated voltage! Tecumseh mass production facilities offer economical choices of hermetic compressors in:

- Horsepower ranges from 1 to 5 HP
- BTU ratings from 10,700 to 62,500
- Internal and external mount models
- Single and three phase
- Air or water cooled application
- Low sound level operation
- Optional oil level sight glass
- Choice of tubes, solder valve, or Rotalock Valve



**ROTALOCK VALVE—**  
Multi - position, detachable valve — permits positioning of suction and/or discharge connections at any angle throughout 360° while maintaining a positive pressure seal.

Your best interests are continually served at Tecumseh. Write your Tecumseh District Office for the best solution to your central system requirements today!

### THE COMPLETE COMPRESSOR LINE — ENGINEERED



Models B1516, B1613

1 HP, single phase, twin cylinder. 11,500 and 12,350 BTU ratings. External mount, air cooled compressors charged with F-22. Primarily designed for self-contained air conditioners.



Model B32P16

1 1/2 HP, single phase, twin cylinder. 16,500 BTU rating. External mount, air cooled compressor charged with F-22. Ideal for small attic installations, operated singly or in tandem.



Models B74T16, B21T18

2 HP, single phase, twin cylinder. 20,000 and 23,400 BTU ratings. External mount, air cooled compressors, charged with F-22. 2 HP compressors designed to broaden the central systems market.



The Leader Serving Leaders In The Air Conditioning And

## TECUMSEH PRODUCTS

EXPORT DEPT. — P.O. Box 2280, 24530 Michigan Ave.,





## TO YOUR INDIVIDUAL SYSTEM REQUIREMENTS



**SINGLE PHASE**

Models JE200, JB200, JE300, PJE300

2 and 3 HP, twin cylinder. BTU ratings from 22,500 to 38,000. All models except JE200 charged with F-22. Internal mount hermetic compressors available for air or water cooled operation. Designed for



**THREE PHASE**

complete flexibility, along with economical mass production to fill the exacting requirements of the year-round air conditioning customer.



**Model FB500**

5 HP, single phase, four cylinder compressor. 62,500 BTU rating. Charged with F-22. Fully hermetic external mount compressor for large residential air conditioning and similar applications.

Refrigeration Industries

# COMPANY

West Dearborn, Michigan

MARION, OHIO  
TECUMSEH, MICHIGAN

# Fabulous Gulfgate



Owner: THEODORE W. BERENSON AND ASSOCIATES, Boston, Mass.; Architects-Engineers: JOHN GRAHAM AND COMPANY, Seattle and New York; Associate Architects: IRVING R. KLEIN AND ASSOCIATES, Houston; Contractors-Engineers: FARNSWORTH & CHAMBERS CO., INC., Houston; Sheet Metal & Roofing Contractor: LYDICK ROOFING COMPANY OF HOUSTON, Houston; Revere Distributor: MONCRIEF-LENOIR MANUFACTURING COMPANY, Houston.



HERE YOU SEE workman putting the Revere-Keystone standard 4" flat copper receiver with 1/4" hook dam in place preparatory to putting masonry in place. Revere-Keystone 2-Piece Cap Flashing also comes in combination receiver and Thru-Wall Flashing, with receiver furnished in 49" lengths (48" layup), with 1" overlap in a locking tongue dam to assure proper alignment. (See diagram on next page.)



MASONRY being put in place over the Revere-Keystone 2-Piece Cap Flashing. In this way masons and roofers can work without interference and without damaging cap which is snapped into place after work is completed.

# Shopping Center

takes 3 fast steps to a tight-as-a-drum

Flashing Installation...uses

## REVERE-KEYSTONE\*

EASY-TO-PLACE

## 2-PIECE CAP FLASHING

This Shopping Center, located in Houston, Texas is the largest regional Shopping Center in the South, and includes famed Joske's and Sakowitz Department Stores. The Center itself, including buildings, truck tunnels and malls covers about 840,000 square feet, with the entire plot covering 2,580,000 sq. ft. which has in excess of 5,000 prime car parking spaces. It represents a \$32,000,000 investment and was designed by JOHN GRAHAM & Co., of Seattle and New York.

Although there are 15,000 lbs. of Revere Sheet Copper and 8,600 ft. of Revere Reglet Flashing on this job the item of greatest interest is the 1,000 ft. of Revere-Keystone 2-Piece Cap Flashing, the flashing system that has created quite a stir with architects, sheet metal contractors and engineers.

### HERE ARE SOME OF THE REASONS WHY—

**FREE WALL**—It provides the roofer with an unobstructed wall face for the placement of the base flashing. Receiver is laid in during construction of wall, while the insert is snapped in only after all roof and base flashing work is finished.

**STRAIGHT CLEAN LINE, PERMANENT GOOD LOOKS**—Factory-bent to precise dimensions. This, with the one-inch locking tongue, assures alignment of receiver slots, uniform appearance.

**PERFECT WEATHER-SEAL**—Factory-formed angles on the receiver and insert cause latter to hug the base flashing, weather-seal effectively. Water cannot blow up behind flashing.

**NON-LEAKING DAMLOCK**—Requires no soldering except for special conditions. The interlocking copper-to-copper overlap

creates a dam which prevents longitudinal travel of water and drains seepage to the face of the wall.

**VERTICAL RECEIVER SLOT ON WALL FACE**—Position of vertical receiver slot on face of wall eliminates possibility of the receiver slot being crushed shut by weight of masonry.

**CAN BE DISASSEMBLED**—Insert can be removed with a simple tool and used again, with no loss of neatness or snugness, when the built-up base flashing or roofing have to be repaired.

Find out about this newest method of flashing neatly, quickly, safely, positively. Send for descriptive literature today! Write Advertising Department.

**FREE!** For group showing—Instructive 16 mm motion picture in sound and color—"SHEET METAL IN BUILDING CONSTRUCTION." A "must" for every Architect, Building Owner, Spec. Writer, Sheet Metal Contractor and Mechanic. Write Revere Advertising Department.

\*Patent No. 2,641,203 Other Pats. Pending

### REVERE COPPER AND BRASS INCORPORATED

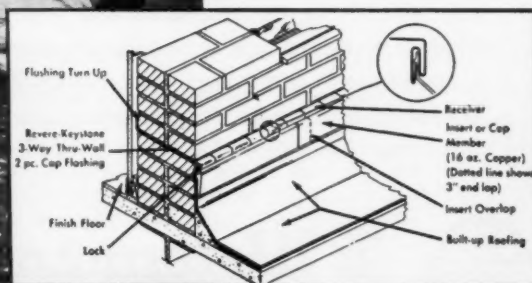
Founded by Paul Revere in 1801

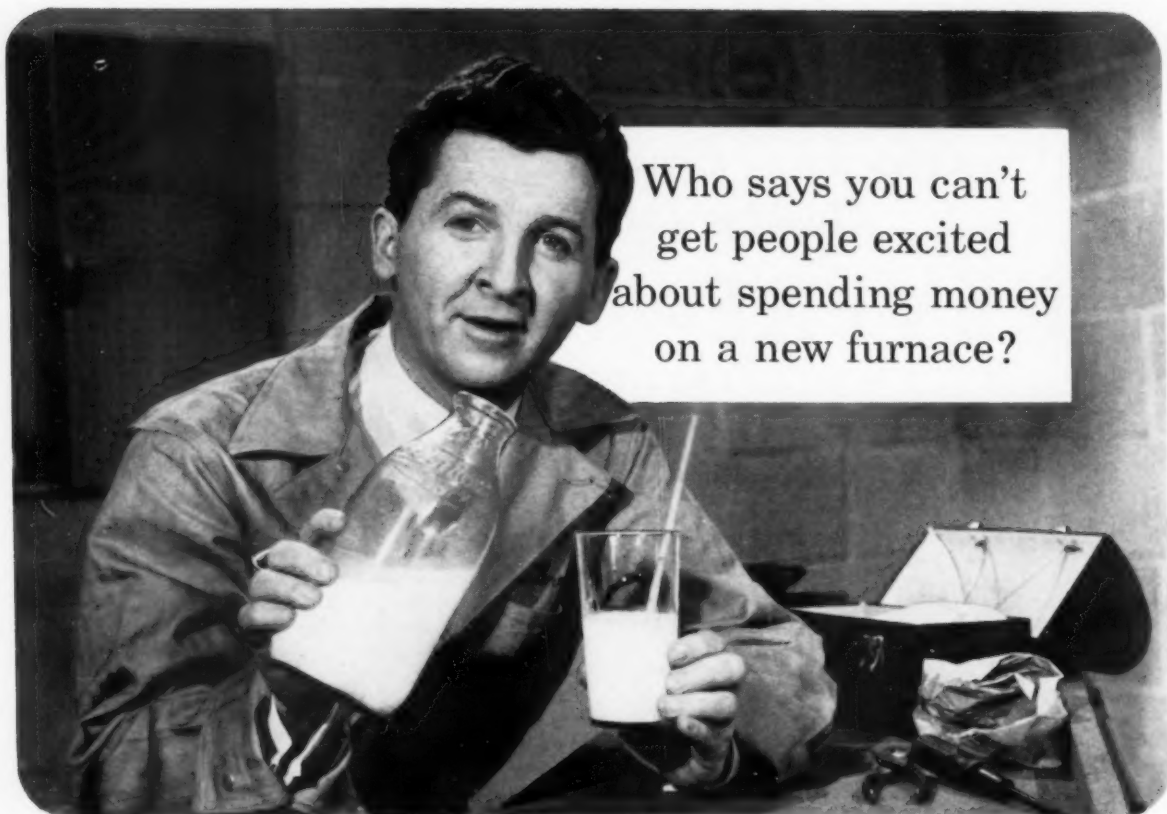
230 Park Avenue, New York 17, New York

Mills: Rome, N.Y.; Baltimore, Md.; Chicago, Clinton and Joliet, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Brooklyn, N.Y.; Newport, Ark.; Ft. Calhoun, Neb. Sales Offices in Principal Cities, Distributors Everywhere.



**SNAPPING CAP MEMBER INTO PLACE** to form a perfect weather seal gives the job a nice, neat finish. And should built-up base flashing or roof need repairing, the insert or cap can be removed with a simple tool and used again without loss of neatness or original snug fit.





Who says you can't  
get people excited  
about spending money  
on a new furnace?

EDDIE BRACKEN USES "MILK-AND-STRAW" DEMONSTRATION ON TELEVISION TO SHOW PRINCIPLE OF WATERBURY COMFORTROL HEATING

# Waterbury's NEW Ideas make selling almost a cinch!

There's a lot of talk these days about the "livewire" in the heating and cooling business—and with good reason. Waterbury offers the finest in a complete line of heating and cooling equipment for you to sell. It gives you the greatest new development in the industry in 20 years—COMFORTROL—the even-temperature comfort system. Waterbury supplies you with practical,

hard hitting sales aids for *helping you sell* both new and replacement jobs.

No wonder the big switch is to Waterbury! **HOW ABOUT YOU?** Write now to Jack Searls, Waterbury's Sales Manager, and you'll be on the way to a more secure, more profitable heating and cooling business by this time next year. You can feel good, feel *sure* when you install Waterbury!



**The Waterman-Waterbury Company**

1122 N. E. JACKSON STREET, MINNEAPOLIS 14, MINN. ★ 50 YEARS OF PIONEERING IN HEATING AND COOLING





## NEW Promotion Ideas

Waterbury offers you the opportunity to tie in with one of America's best-known, best-liked personalities, Eddie Bracken. On radio, television and in promotional materials, he commands attention, directs prospects to you and opens the door to easier selling. And he really has something to sell when he helps you sell Waterbury.



In a series of TV films available to dealers, TV-movie star Eddie Bracken plays the part of a Waterbury dealer.

## NEW TELEVISION-RADIO AD PACKAGE STARRING EDDIE BRACKEN BUILDS UP WATERBURY DEALERS!



He demonstrates how Waterbury COMFORTROL Heating feeds heat into a home at exactly the same rate it leaks out.



And he tells the story of how Waterbury's factory training program makes Waterbury dealers real "comfort engineers".

### WATERBURY HELPS YOU SELL:

- Recorded radio spots with Eddie Bracken.
- Eddie Bracken featured on direct mail pieces available to dealers.
- Complete kit of newspaper ad mats
- Outdoor and Indoor Display Plans
- 'Selling in the Home Plan'—most complete plan to nail down replacement sales. Dealers report the plan increases volume 30-200%!
- Dealer Education Plan—year 'round field conferences, factory schools keep dealers up-to-date on everything you need to sell!
- Builder Promotions Kits—to help dealers make hay in the new home market.

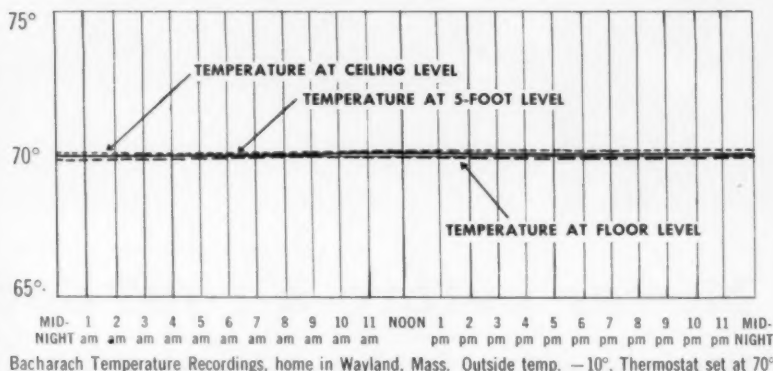
**GO, GO, GROW with WATERBURY!**

## NEW Product Ideas



**YOU SELL HEALTH** when you sell Waterbury COMFORTROL. Not only does the temperature remain constant hour after hour—it varies less than 1 degree from floor to ceiling!

## NEW WATERBURY *Comfortrol* GIVES YOU A GREAT PRODUCT THAT MAKES 'EM FORGET ABOUT PRICE!



### IMAGINE HOW THIS CHART CAN HELP YOU SELL!

It's the picture of carefree, constant comfort you can promise when you sell revolutionary new Waterbury COMFORTROL. No more fussing with the thermostat . . . no more bake-one-minute, freeze-the-next heat. COMFOR-

TROL's continuous flow of warm air at just-right temperature assures a new kind of comfort that makes a home owner forget about price. And look to WATERBURY for *more NEW IDEAS* that you can sell!

**This is the month to SWITCH TO WATERBURY!**



## Never before a roof deck like this!

**Milcor Steel Roof Deck is designed to cut erection costs and on-the-job damage**

Milcor Deck makes every job easier, quicker and more profitable. Here's why: Its 24-inch width and lengths up to 28 ft. 6 in. speed erection. Its die-set ends make fitting easier, more rapid. Its  $\frac{3}{4}$ -in. wide ribs permit con-

venient welding from the top. • But there's more! *Only Milcor Steel Roof Deck has a Bonderized, baked-enamel prime finish.* • For the full story on Milcor Steel Roof Deck and its exclusive advantages, write for Catalog 240.

**MILCOR**



INLAND STEEL PRODUCTS COMPANY • Dept. W. 4023 West Burnham Street • Milwaukee 1, Wisconsin  
ATLANTA • BALTIMORE • BUFFALO • CHICAGO • CINCINNATI • CLEVELAND • DALLAS • DENVER  
DETROIT • KANSAS CITY • LOS ANGELES • MILWAUKEE • MINNEAPOLIS • NEW YORK • ST. LOUIS.



"A" Section — The standard of the industry for closed-rib decks.



"B" Section — Wide rib distributes metal for greater structural efficiency — gives higher section properties per pound of steel.



"C" Section — Carries normal roof loads over spans up to 20 feet.

### E. R. Queer Named For ASHAE Post

NEW YORK CITY — Elmer R. Queer, professor of engineering research, Pennsylvania State University, has been nominated for the presidency of the American Society of Heating and Air-Conditioning Engineers. Balloting will be conducted by mail and the new officers installed at the annual meeting in January.

Also nominated were Arthur J. Hess, Los Angeles, for first vice president; Walter A. Grant, Syracuse, N. Y., for second vice president, and John H. Fox, Toronto, Ont., for treasurer.

Nominees for three year terms on the Society's Council include Frank H. Faust, Fred Janssen, James W. May and Gayle B. Priester.

The 64th annual meeting will be held in Pittsburgh, Jan. 27-29, 1958. John Everetts, Jr., Philadelphia, chairman of the program and papers committee, has revealed plans for seven sessions and two symposiums. One session featuring four papers is expected on Utilization of Solar Energy. Some of the papers which may be presented at other sessions include discussions of the effect of cold ceilings on the feeling of comfort, study of comfort with heated floors, characteristics of multi-louvered dampers, development of a sensitive anemometer for measuring air movement at very low speeds, and determination of chimney draft.

### May Drop Restrictions To Favor Curtain Wall

CLEVELAND — A building code amendment to make it easier to build skyscrapers in Cleveland with curtain wall exteriors is under consideration by city officials. The suggested change would allow builders to use steel and aluminum sheets without adding thick layers of fireproof backing.

## HIC Offers Prizes for Home Improvement Ideas, Projects

NEW YORK CITY — A \$250,000 contest for the nation's homeowners will be one of the highlights in the 1958 promotion program being planned by the Home Improvement Council, successor to Operation Home Improvement. The contest, which will be announced publicly after the first of the year, was described by Fred Hecht, HIC chairman, at a press meeting here.

Backed by heavy promotion, the contest is designed to stimulate interest in home improvement and encourage action to bring it about. The first part of the contest will offer cash prizes for the best 25 word statement by a homeowner describing his most needed home improvement. It will also require the completion of a checklist indicating the adequacy of numerous home items. The second phase, with separate

prizes, will require the actual completion of a home improvement project with the aid of a local HIC member.

Mr. Hecht pointed out that HIC's program and organization will be quite different from that of the now discontinued ohi. The Council is es-



THIS SEAL will identify members of the new organization

### Furnaces Off 16.8% First Seven Months

CLEVELAND — Central heating furnace shipments continued to lag behind last year through July, according to a report from the National Warm Air Heating and Air Conditioning Association. Totals for the first seven months were 16.8 percent below the same period in 1956. The month of July itself saw shipments down a little over 23 percent.

Shipments of both gravity and winter air conditioning units during the period totaled 535,427. In comparison the same figure for the year previous was 644,024. July shipments were down from 111,614 to 85,681.

Manufacturers' inventories were somewhat less in July than in June. Units on hand in July totaled 229,175 compared with 231,863 a month earlier.

established on a permanent basis with its program directed at the consumer. Support will come from memberships at all levels of the industry.

Dealers, contractors and other local level members will serve as "contest headquarters" for entrants. This offers an opportunity for heating-cooling dealers to play an active role in the program. HIC memberships are offered to dealers and contractors of all types at \$50 (25 or more employees) or \$25 (fewer than 25 employees).

In addition to the contest, HIC will engage in intensive publicity, public relations, and research programs. Two complete newspaper sections promoting the contest and home improvement in general have been tentatively scheduled. A motion picture selling the benefits of modernization to the public is also in the planning stage. Through research HIC hopes to determine the size, nature and scope of the home improvement market and motivations behind home improvement purchases.

# Electro-Klean performance.....



## Distributor Bryant-Williams praises Company Performance

"When AAF showed us its new product—*Electro-Klean* Electronic Home Air Filter—and a complete plan for opening the Pittsburgh market, we were interested. But we also wanted to be *shown*. Would the company follow through with every phase of its proposed campaign? Well, listen to this.

"From kickoff dealer meetings to large-scale color newspaper advertising and the full-time services of a top publicity expert, AAF's master promotion plan was followed through to the letter! No momentary splash, this, but a lot of sound thinking backed up by concentrated *action*. It sure was a real pleasure to work with a company that performed 100% on its promises."

*Lee Williams*  
Bryant-Williams Company  
936 Ridge Avenue  
Pittsburgh 12, Pennsylvania



## Dealer D. E. Hickey praises Sales Performance

"We were impressed with *Electro-Klean's* sales features from the moment it was introduced at AAF's first dealer meeting here. We liked the ads, too, and a program that made a lot of sense. Another big point that sold us—the many ease-of-installation features. No special wiring. No water or sewer connections. No moving parts to wear out. Advancements like that make *our* selling job easier.

"The fact that we could realize a full profit on every sale was the clincher. *Electro-Klean's* price makes that possible.

"In fact, the sales story was so convincing I now have one in my own home!"

*D. E. Hickey*  
D. E. Hickey Company  
8157 Bennet Street  
Pittsburgh 21, Pennsylvania  
(Mr. Hickey is President of the Heating and Air Conditioning Contractors Assn. of Pittsburgh.)

*Built and Backed by American Air Filter Company, Inc. .*



# .tops expectations in Pittsburgh



## Mrs. Robert L. Patterson praises **Product Performance**

"Whoever heard of a home 'that house-cleans itself'? Both my husband and I were willing to be shown. You see, white is the dominant color theme in our home . . . but oh, what a problem to keep clean!

"Now, however, we can already notice the difference with our new *Electro-Klean* Home Air Filter. Our walls and woodwork stay clean. Draperies, too, retain their fresh, new look. Of course, there hasn't been time to see if *Electro-Klean* does *everything* claimed for it, but its marvelous performance so far has more than satisfied us."

Mrs. Robert L. Patterson  
612 Berkshire Drive  
Fox Chapel  
Pittsburgh,  
Pennsylvania

Let *Electro-Klean* Electronic Home Air Filter open a new field of profit for you. Take advantage of this new way to lift a sale out of competition. Priced at just *one-half* that of comparable units, *Electro-Klean* makes every home a prospect for electronic air filtration. No longer do you have to cut price. Instead, you take a *full* profit on every unit!

Discover what AAF performance *really* means . . . right from promotional support to a dependable product that eliminates after-service problems and complaints. Remember, every *Electro-Klean* unit is *fully* guaranteed.

See your distributor today. If he doesn't know the *new Electro-Klean* story, write: *Electro-Klean* Dept., American Air Filter Company, Inc., 355 Central Ave., Louisville 8, Ky.

## *Tired of swapping dollars?*

Ask your distributor about the new low-priced *Electro-Klean* . . . There's nothing like it on the market!



NEW MODEL  
NEW LOW PRICE

# *Electro-Klean*

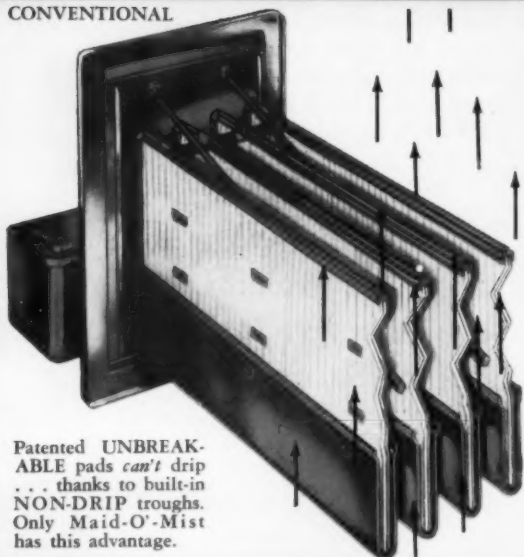
ELECTRONIC HOME AIR FILTER

. *World's Largest Manufacturer of Electronic Air Filters*

# MORE AND MORE CONTRACTORS ARE INSTALLING MAID-O'-MIST *Automatic* Convector HUMIDIFIERS

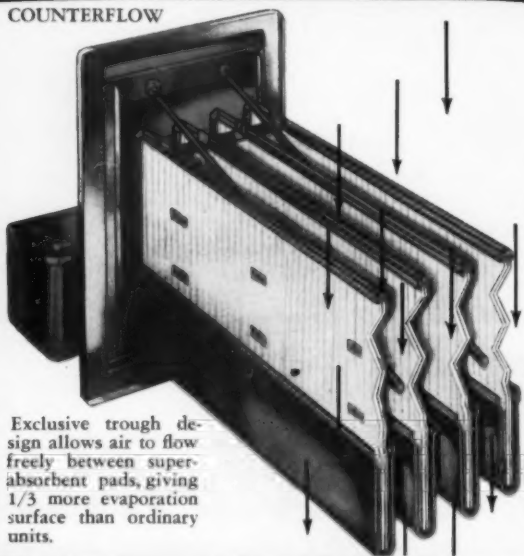
Saves *half* the time to INSTALL! Gives a *third* MORE EVAPORATION AREA!  
Has *two-thirds* LESS AIR RESTRICTION IN THE PLENUM!

CONVENTIONAL



Patented UNBREAK-ABLE pads *can't* drip . . . thanks to built-in NON-DRIP troughs. Only Maid-O'-Mist has this advantage.

COUNTERFLOW



Exclusive trough design allows air to flow freely between super-absorbent pads, giving 1/3 more evaporation surface than ordinary units.

## GIVES MOST FOR LEAST

While a Maid-O'-Mist humidifier gives lasting satisfaction to the customer, it costs very little. Actually, it gives more humidity per dollar cost than any humidifier on the market.

## Fits Both Conventional and Counter Flow Warm Air Furnaces

The only standard unit that does! Perfect for small plenums, easy to install. No flat bottom pan to block flow of air.  $\frac{3}{8}$ " individual troughs, spaced an inch apart to allow free airflow between evaporator pads, give a THIRD MORE EVAPORATING SURFACE.

## Something NEW! RENEWAL KIT

with evaporator pads and valve stem. Easy for home-owner to install himself. Eliminate service calls. Ask your jobber or write us for details.

WRITE FOR FREE CATALOG TODAY.

60% LESS AIR RESTRICTION IN PLENUM

30% MORE EVAPORATION AREA

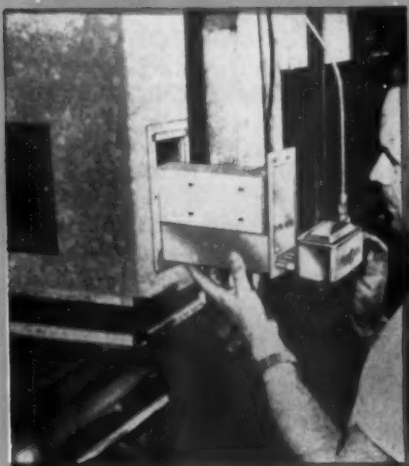
50% LESS INSTALLATION TIME

AUTOMATIC HUMIDIFIERS . . . . . WATERLINE CONTROLS  
AUTO VENTS . . . HEATING AND AIR CONDITIONING SPECIALTIES

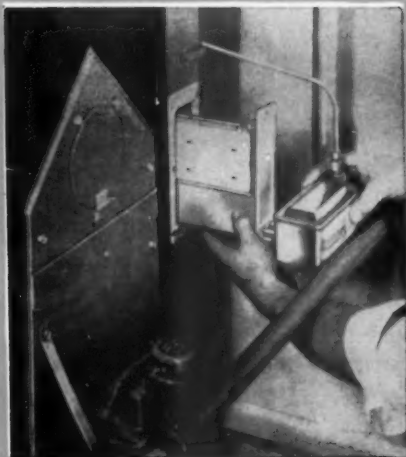
# MAID-O'-MIST, Inc.

3217 NORTH PULASKI ROAD • CHICAGO 41, ILLINOIS

The only standard unit that fits both conventional and counter flow systems



**FOR CONVENTIONAL** warm air furnaces cut opening in plenum and make water connections. 9 sizes available with evaporation capacities of 1 to 10 gals. per day.



**FOR COUNTER FLOW**, because of its narrow trough design, you can install on either side of furnace having 3" minimum air passage.

# for steam, hot water or convector radiators MAID-O'-MIST *automatic* HUMIDIFIERS

Original in design . . .  
Low in cost



On low pressure  
steam systems—

**AUTO-VENT®**  
automatic **HUMIDIFIER**  
**No. 95**

Here's the inexpensive, efficient, QUIET way to keep the air freshened and comfortable. It discharges 1 pint of water vapor per hour at 1 lb. steam pressure . . . enough for 2000 cu. ft. Easy to install . . . just remove air vent valve from radiator and screw No. 95 in its place.

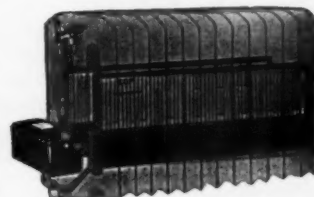


**No. 95**  
4 1/2" high,  
2 1/4" diameter.

On hot water  
or steam radiators

**OL' FAITHFUL®**  
automatic **HUMIDIFIER**

Heavy copper twin troughs, each 5/16" wide by 2" high are concealed in loops inside the radiator sections from the side. A constant water line is maintained automatically in the troughs by a float controlled water valve. Patented corrugated evaporator pads extend 3" above water line in troughs.



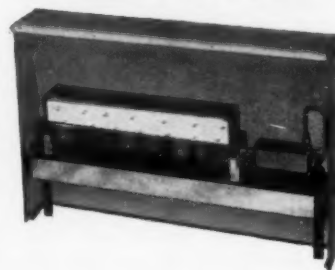
Ol' Faithful uses water from radiator on hot water radiators, or from nearest supply on steam installations.

Three sizes:  
18", 24" and 34" lengths.

Complete range of sizes!

**CONVECTOR**  
**HUMIDIFIERS**

For either cast iron or copper convector radiators . . . 5 lengths, 2 and 4 water troughs. Constructed of heavy copper, the water troughs are 3/8" wide, spaced 1" apart for unrestricted air flow. Each trough is automatically supplied with water from radiator by No. 59 float control valve. On steam instal-



lations, water is taken from nearest supply thru copper tubing. Shipped assembled.

WRITE FOR NEW CATALOG



**MAID-O'-MIST, Inc.**

3217 NORTH PULASKI ROAD · CHICAGO 41, ILL.

### No Fall Upturn, But Business Maintains Its High Plateau

WASHINGTON, D. C. — As the year agricultural employment. At the same time nonfarm employment reached a record level. Unemployment dropped as students withdrew from the labor market.

Although the economy shows some soft spots and it is difficult to project current trends, the nation as a whole is enjoying exceptional prosperity.

A bright spot in this picture was the increase in consumer purchasing which accompanied an advance in personal income. However, the public seemed to be spending its money selectively. Almost all of the rise in spending was in nondurable goods and services. Aggregate sales of durables had little change, although they were slightly higher in dollar value.

Attention is being focused on the automobile industry and its major effort to capture the consumer's interest. The industry represents such an important segment of the economy that a highly successful introduction of the new models would no doubt invigorate the entire economy.

Business spending on capital investment seemed to be leveling off. This led some to look for an easing in the money market which might aid in stimulating new home construction.

Although home building has been showing signs of recovery, the season slipped past before any significant effect could be felt. Substantial improvement will have to wait until next year.

### Artisan Honored By Plaque from Indiana Association

GARY, IND. — An engraved plaque honoring American Artisan's role in the industry was presented to Clyde M. Barnes, editor, by the Sheet Metal and Warm Air Heating Contractors Association of Indiana at the district meeting held here Oct. 18.



PLAQUE is presented by Don McCloskey (left) to Clyde Barnes

The presentation was made by president Donald S. McCloskey. Engraved on the plaque was "Presented to American Artisan for outstanding service and contributions to our industry and for loyal support of our association." Similar awards were made to two other magazines.

Mr. McCloskey praised the role of the trade press as he made the presentations. He advised dealers to have copies of the publication sent to their homes where they could be read without interruption. He suggested an office copy for employees.

### Steel Production Sets Record for Nine Months

NEW YORK CITY — A record 87,721,169 net tons of steel ingots and steel for castings was produced during the first nine months of this year, according to the American Iron and Steel Institute's preliminary report.

(More news on page 34)

### Gas for Chicago Wins FPC Approval

WASHINGTON, D. C. — Pipeline facilities to bring 485 million cu ft of natural gas a day to the Midwest (principally the Chicago area) were brought closer to reality by the decision of a Federal Power Commission presiding examiner who authorized new construction by five pipeline companies. The decision must still be reviewed by the Commission.

Part of the approved program will be construction by Natural Gas Pipeline Co. of 415 miles of 36 in. loop line between Beatrice, Neb., and Joliet, Ill., to increase capacity by 450 million cu ft per day. Supercharging of mainline compressor engines will add another 35 million cu ft per day to capacity.

The examiner's decision requires the company to submit to the FPC "an equitable plan" for distribution.

### Adhesives and Sealants Subject for Conference

WASHINGTON, D. C. — The use of adhesives and sealants in building construction will be spotlighted at an industry conference to be conducted here by the Building Research Institute Dec. 4-5. Although the meeting will treat all uses of sealants and adhesives, one session will include a discussion of their use in heating and air conditioning, including the fabrication of duct work, insulation of pipes and ducts, gasketing of fixtures, grilles and outlets.

For registration information and other particulars write Harold Horowitz, technical secretary, Building Research Institute, 2101 Constitution Ave., Washington 25, D. C.



# Your choice of normal or low starting current... with Performance-Rated



Capacitor Motors...  $\frac{1}{8}$  to 20 H.P. provide high starting torque, high pull-up torque and require normal starting current. They are available in drip proof, dust proof and explosion proof enclosures.



## SINGLE-PHASE, HIGH TORQUE MOTORS FOR OIL FIELD USE

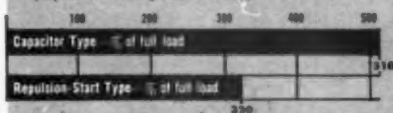
Even if you have severe starting current limitations, you can select the torque you need for sure starts and smooth pull-up to speed from the Century Performance-Rated Single-Phase line (see bar chart below for operating characteristics of two types of Century Single-Phase Motors).

**Whatever Your Oil Field Motor Job...** there's a Century Motor Performance-Rated to handle it with top effectiveness. For added outdoor protection, Century *Weather-Gard* Motors have openings screened to keep out rodents. Check with your supply store, or Century branch office.

### TYPICAL OPERATING CHARACTERISTICS

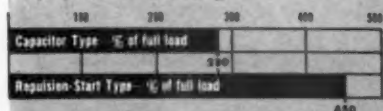
#### STARTING CURRENT

(Important on Heavily Loaded Circuits)



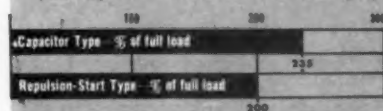
#### STARTING TORQUE

(Torque Available at Break-Away)



#### PULL-UP TORQUE

(Least Torque Available Between Start and Full Load Speed)



Repulsion Start, Induction Motors (type RS)...  $\frac{1}{8}$  to  $7\frac{1}{2}$  H.P. provide very high starting torque, yet require unusually low starting current. They are available in drip proof and splash proof enclosures.

**Performance-Rated**  
Motors  
 $\frac{1}{8}$  to 400 H. P.



## CENTURY ELECTRIC COMPANY

CE-32R

1806 Pine Street, St. Louis 3, Missouri • Offices and Stock Points in Principal Cities

WITH

*Luxaire* YOU HAVE

# Excellence

IN EVERY UNIT OF  
THE COMPLETE LINE

## Priced

TO MEET  
ANY COMPETITION



Basement Type  
Winter Air  
Conditioner.  
Oil or Gas Fired

Year 'Round  
Air  
Conditioner.  
2, 3 or 5 H.P.  
Air or Water  
Cooled, Gas  
or Oil Fired.



Utility or  
Counterflow  
Winter Air  
Conditioner.  
Gas or  
Oil Fired.

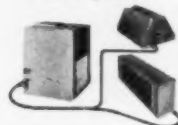


Horizontal Furnace.  
4 Oil Models.  
4 Gas Models.

Gravity  
Furnace.  
Gas or  
Oil Fired



Add-On Air Cooled  
2, 3 or 5 H.P. Summer  
Air Conditioner.  
(Compressor-  
Condenser Assembly  
available with Duct  
or Plenum Type  
Cooling Coil.)



Add-On Water  
Cooled 3 or 5 Ton  
Summer Air  
Conditioner.



Gas Fired  
Unit Heater.  
5 Sizes.



Gas Winter Air Con-  
ditioner has front panels  
removed to show com-  
plete factory assembling  
and wiring.



Winter Air Conditioner  
with Plenum Type Cooling  
Coil. Provision is made to  
increase Blower capaci-  
ty for cooling, as needed.



Oil Winter Air Condi-  
tioner, showing interior  
construction with long air  
travel over Round Com-  
bustion Chamber and  
large Front Radiator.

### NEW! Assembled and Wired! Gas Fired, Oil Fired Units

Combining a new high in distinctive styling with new advantages for speedier installations, these *all-new* Luxaire Furnaces feature a sturdier type of construction that you can see and feel. Yet, thanks to advanced design and efficient production, they are amazingly low in price. Gas Fired Units are available as either Winter Air Conditioners or Counterflow Units, with 75,000, 100,000, 125,000 or 150,000 Btu input. Oil Fired Units are available with 78,400 and 112,000 Btu at Bonnet, as either Winter Air Conditioners or Counterflow Units.

Luxaire has solved your problem of choosing between an excellent product and a low price. For, with Luxaire, you have both!

Select any unit from the complete Luxaire line of the most popular sizes and types of Heating and Air Conditioning Units. You have a deluxe unit that is unsurpassed for excellent, trouble-free performance and long life. And you enjoy a price advantage that permits you to meet competition with a respectable margin of profit!

The reasons are undeniable. First, Luxaire concentrates on rugged construction with uncomplicated design that eliminates unnecessary and troublesome gadgets. Second, Luxaire manufacturing is completely up-to-date in both tooling and methods.

When you concentrate on Luxaire, you quickly discover that it is unnecessary to seek cheaply constructed units in order to meet price competition.

See your Luxaire jobber, now!

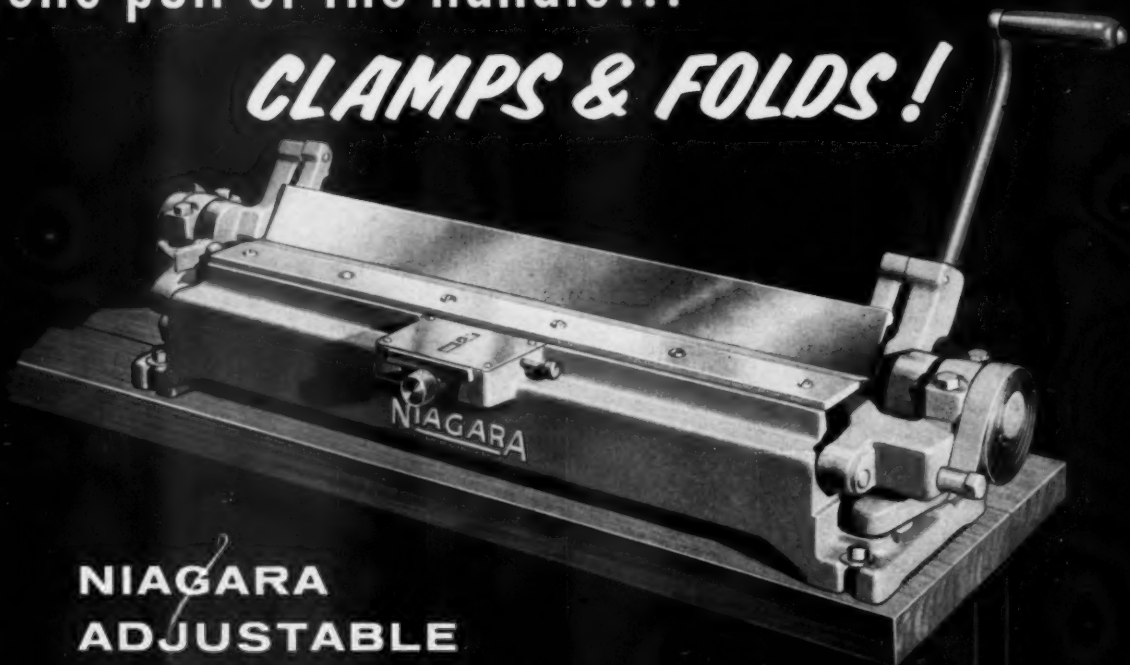
THE C. A. OLSEN MANUFACTURING COMPANY • ELYRIA, OHIO

*Luxaire*

HEATING & AIR CONDITIONING UNITS

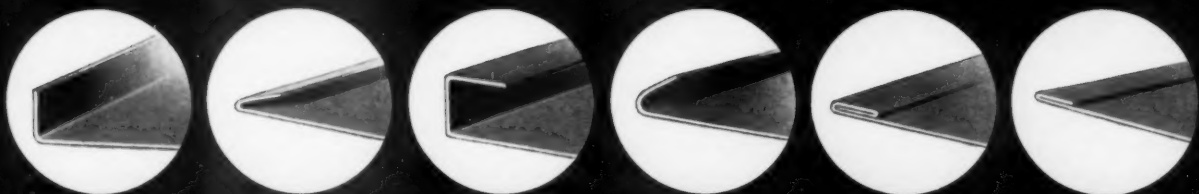
one pull of the handle...

***CLAMPS & FOLDS!***



**NIAGARA  
ADJUSTABLE  
BAR FOLDERS**

***make it easier to do accurate work...FAST!***



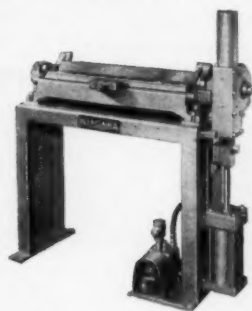
Just slide the sheet between the folding blade and the jaw . . . and pull the handle forward. Clamping and folding are practically simultaneous. It's all done with a single motion! Return the handle to starting position, and finished work is quickly released. Niagara Adjustable Bar Folders are fast, versatile and rugged. Easily and quickly adjustable to desired angle of bend, width of fold and thickness of material, they're ideal for producing narrow, sharp, close and *accurate* folds, like those for lock seams. Four sizes are available for handling lengths from 21" to 42".

**GET ALL OF THE FACTS** on the many unique features of this profit-maker, as well as the complete Niagara line of hand and power operated folders and brakes. Write for new, illustrated Bulletin 74 today.



**NIAGARA**

NIAGARA MACHINE & TOOL WORKS, BUFFALO 11, N. Y.  
DISTRICT OFFICES  
Buffalo • Cleveland • Detroit • New York • Philadelphia  
Dealers in principal U. S. cities and major foreign countries



**AIR ACTUATED MODELS, TOO!**  
Perfect answer for faster production of narrow width work. Available in three sizes for lengths of 30" to 42".

***America's Most Complete Line of Presses, Shears, Press Brakes, Other Machines and Tools for Plate and Sheet Metal Work.***

## Tax Reduction May Highlight Coming Session of Congress

WASHINGTON, D.C. — Tax relief for all segments of the economy will occupy a major portion of the thoughts of Congressmen when the next session begins in January. Lengthy hearings by the House ways and means committee are already scheduled, and they promise to be a sweeping review of the entire federal tax system.

With an eye ahead to the 1958 elections, Congressmen are expected to consider reductions of some kind for a broad range of taxpayers. Relief may be in store for individuals, corporations in general and small business in particular, and businesses burdened with excises.

If congress sees a budget surplus in

fiscal year 1958, it would make reductions not only possible but probable. Cuts in appropriations made this year may help create the surplus, along with recent economy measures taken by the administration. But doubts have been expressed.

In addition to tax reduction, Congress is expected to take another look at the Internal Revenue Code of 1954 for possible revision.

## New Kansas Law Affects Nonresident Contractors

KANSAS CITY, Mo. — Attention was called by the Sheet Metal and Air Conditioning Contractors Association of Greater Kansas City to the new Kansas nonresident contractors' registration and bonding law. It requires all nonresident contractors to register with the director of revenue all contracts over \$3000, even as a subcontractor. A \$10 fee is charged for each contract.

On contracts over \$10,000 or at the discretion of the director a bond must be filed for 10 percent of the contract price on a form prescribed by the state.

Out-of-state corporations registered with the secretary of state are exempt.

## Exhibits for Southeast Trade Show Top 1957

ATLANTA — At this early date exhibit reservations for the Southwest Trade Exposition to be held here next Mar. 27-30 already exceed the total of the 1957 show. More than 14,000 sq ft of exhibit space has been made available for the 1958 event. In addition, the program will again feature outstanding industry speakers.

## Stromberg Named Vice President of Washington Group

WASHINGTON, D. C. — Paul Stromberg, a recent past president of the Sheet Metal and Air Conditioning Contractors' National Association, was elected second vice president of the Washington Building Congress. This election will lead to the presidency of the association in two years. He has just completed a three year term as a director.

Mr. Stromberg brings a valuable relationship with union labor to the executive board of the association as he had been a member of the National Joint Board for Settling Jurisdictional Disputes for a number of years and is now acting as advisor to the sheet metal trades representation on the current board.

The Washington Building Congress is a 1400 member organization representing all branches of the construction industry in the metropolitan Washington area. The association was formed in 1937 and celebrated its 20th anniversary with a banquet on October 14, at which time the new officers were installed.

Activities of the association are handled by committees ranging from building codes and public relations to technical and apprenticeship training. Mr. Stromberg has been chairman of the apprenticeship committee for the past eight years and will continue in this position.

The apprenticeship committee consists of 12 members representing contracting firms, trade unions and educational institutions. This committee has dedicated its efforts to improving the apprenticeship training program by acting as a clearing house of industrywide training problems. It has inaugurated a forum where new ideas relating to training and successful applications of older ideas can be adapted to aid apprentices in training.

## Arkla Corporation Acquires Servel AC

EVANSVILLE, IND. — Arkla Air Conditioning Corp., a new wholly owned subsidiary of Arkansas Louisiana Gas Co., has acquired manufacturing facilities and rights for the line of gas air conditioning equipment formerly produced by Servel, Inc. Arkla will resume full production at the plant here after a brief shutdown.

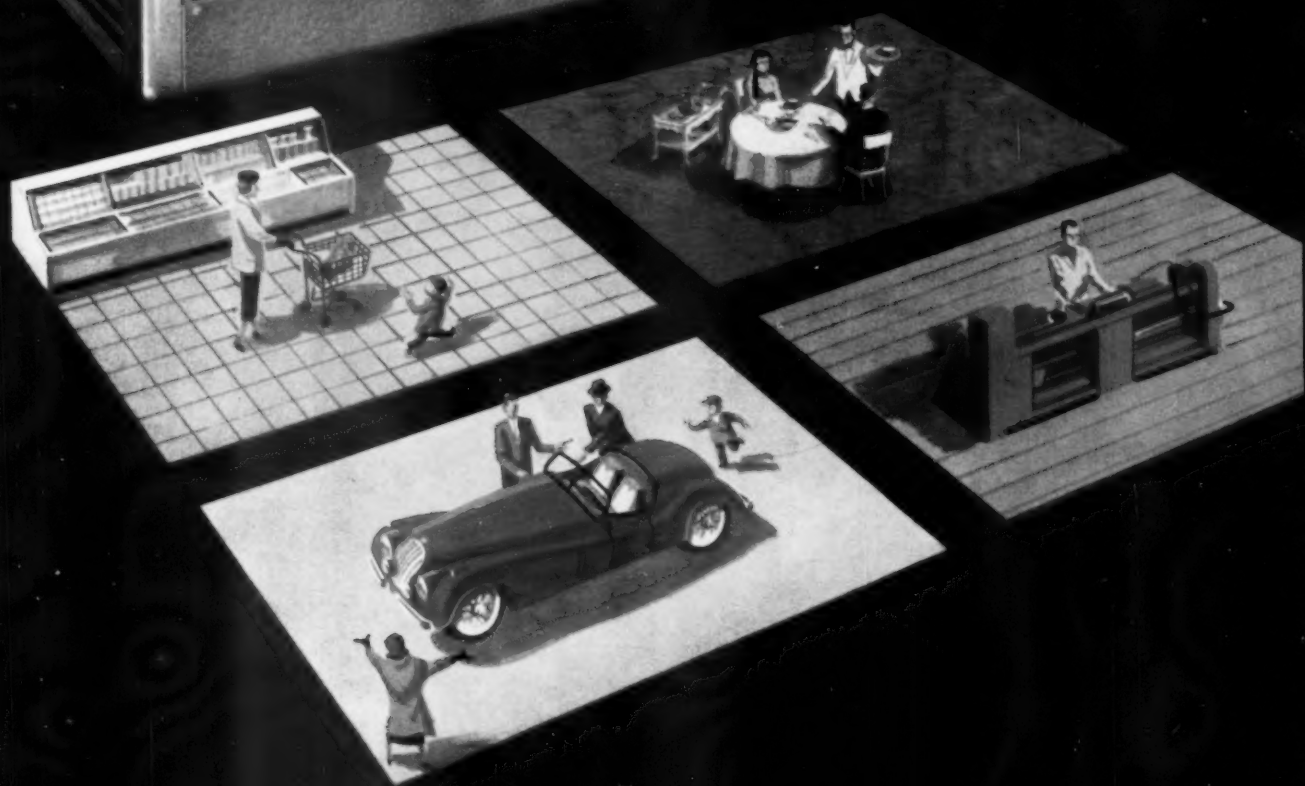
The units to be produced by the new company will bear the trademark names, Arkla-Servel, Sun Valley and All-Year.

The company announced that all organization details have been completed, except for the sales force, which will be greatly expanded. The sales headquarters will be located in Little Rock, Ark., home office of W. R. Stephens, chairman of the board of both the parent firm and the new subsidiary. The company said that Mr. Stephens will take "active leadership in the air conditioning sales organization."

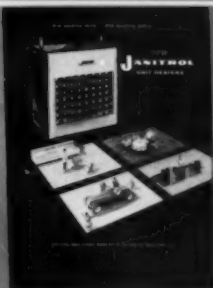


the quality tells ... the quality sells

*new*  
**JANITROL**  
UNIT HEATERS



provide fast, clean heat for a variety of applications



for heating buildings  
of every type...

**JANITROL®**

**gas heating offers  
many advantages**

## FACTS about **JANITROL®** gas-fired UNIT HEATERS



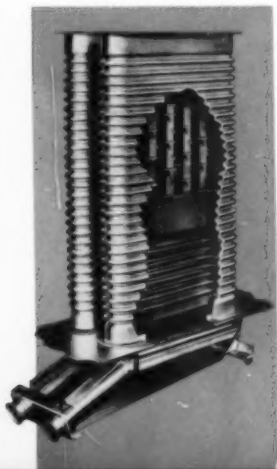
Because of their versatility and efficiency, combined with low cost, Janitrol unit heaters can be installed to advantage in most every commercial or industrial building.

They are installed easily, without sacrifice of floor space, and without expensive duct work. They are completely automatic. They direct heat where it's needed, and only when it's

needed—important for operating economy. They offer versatile "dual fuel" performance—use natural or LP gas; may be switched from one fuel to the other automatically. As for durability and low maintenance, let this fact guide you. Janitrol's exclusive Multi-Thermex heat exchanger is so enduring that replacements for any cause have been less than ¼ of 1% in over two million heat exchanger tubes produced since 1940!

Whether for heating a factory with acres of floor area, or a modest neighborhood store, Janitrol gas-fired unit heaters meet every requirement... well within the building budget. Use them on your next job.

## FAMOUS **JANITROL®** MULTI-THERMEX HEATING HEART... with Multi-Thermex heat exchanger and Ampli-Fire Ribbon Flame Burners



Virtually indestructible! Corrugated metal walls—aided by internal baffles—speed heat from heat exchangers into air stream. Resist corrosion and cracking. Ampli-Fire ribbon flame burner is specially designed and positioned to prevent direct contact of flame on metal. Assures freedom from damaging "hot spots" and internal stresses. Only Janitrol gas heaters have this time-proved feature!

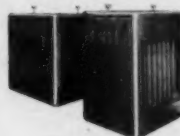
There's a **JANITROL®**  
for every commercial and  
industrial heating need



### GAS-FIRED DUCT FURNACES

Designed for installation in a duct where the air is circulated by a remote blower. Especially adaptable to heating applications for industrial processing and for heating in combination with cooling. Low in cost, saves installation time and labor. Five sizes: Rated input from 85,000 to 450,000 Btu/hr.

### BLOWER-TYPE UNIT HEATER



Allows air delivery from greater heights and against greater static resistances, permitting use with ducts. Provides effective heating over a wider range when

outlet nozzle area is reduced, and blower adjusted to increase outlet air velocity. Use with extensive supply and return duct systems. Six sizes: Rated input from 85,000 to 450,000 Btu/hr.



### FLOOR-TYPE UNIT HEATER

Cold air drawn from floor level is heated, filtered and discharged horizontally overhead. Quiet, clean, care-free—ideal for offices, restaurants, stores, labs, etc., requiring a compact unit. May also be connected to a duct system. Six sizes: Rated input from 60,000 to 180,000 Btu/hr.

### HEAVY DUTY BLOWER HEATERS



For unit heating, central heating and air conditioning. Wide range of standard blowers and motors assures correct air delivery and temperature rise in each application. Factory assembled and tested. Capacities from 250,000 Btu to 1,750,000 Btu/hr. input.

ARCHITECTS, ENGINEERS AND CONTRACTORS  
INFORMATION SERVICE. Write today for complete A.I.A. files on heating with gas in buildings of every type, and for Janitrol specifications service. There's no obligation.

**JANITROL** HEATING & AIR  
CONDITIONING DIVISION, SURFACE COMBUSTION  
CORPORATION, COLUMBUS 16, OHIO  
In Canada: Moffat Heating & Air Conditioning Division  
Moffats, Ltd., Toronto, 15

Also Makers of Surface Industrial Furnaces, Kathabar Humidity  
Conditioning, Janitrol Residential Heating and Cooling Equipment



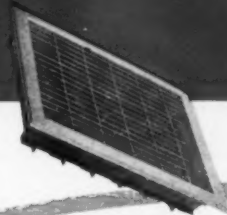
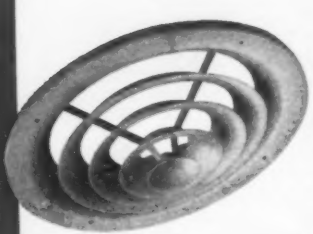
# Qualitization

## Lima

STANDARDIZATION  
INCREASES

**QUALITY  
and  
SALES  
APPEAL**

OF EVERY LIMA REGISTER



STANDARDIZED *Lima* LINE GIVES  
YOU ONLY THE REGISTERS THAT YOU  
SELL MOST OFTEN

**ONLY LIMA GIVES YOU ALL  
THESE PROFIT ADVANTAGES**

- ✓ SIMPLIFIED INVENTORY
- ✓ LESS CAPITAL INVESTMENT
- ✓ FASTER TURN-OVER
- ✓ REDUCED WAREHOUSE SPACE
- ✓ SIMPLIFIED HANDLING
- ✓ BETTER QUALITY
- ✓ GREATER SALES APPEAL
- ✓ BETTER CUSTOMER SERVICE

Lima makes basic styles and basic sizes that answer 98% of your customers' register and diffuser needs. Special machinery and processes give each size and each style individual attention. Every Lima Register is constructed of quality materials with one-piece rigidity.

Every Lima Register has a finish that is electrostatically applied for evenness, then baked on for lasting beauty.

Every Lima Register is "Qualitized" with features that increase sales appeal and accelerate turn-over. More and more dealers are finding out that Lima's Standardized Line answers their needs BETTER . . . and at LESS COST!

WRITE US TODAY . . . IT WILL PAY YOU TO  
MAKE US PROVE OUR POINT

## Lima

### REGISTER COMPANY

1786 N. Cable Rd., Lima, Ohio

*sold exclusively through wholesalers and manufacturers*



**never before . . .  
so many controls and  
services to make you  
fully competitive!**

**CONTROLS COMPANY OF AMERICA, first name in  
quality controls, now offers you combined research, engineering  
and production facilities to solve any control problem in this field.**

**W**E'LL guess that you've never really known the full breadth of the line of A-P Controls we offer you — and we make no attempt here to show them all. Just this — whatever your application: air conditioning, refrigeration, ventilation, oil heating, gas heating and cooking — scores of "years ahead" controls are immediately available from nearby stocking jobbers. In the refrigeration and air-conditioning field alone —

A-P serves you with more than 400 authorized stocking jobbers. And there's the invaluable backing of a nation-wide network of service stations whenever desired.

Very often we're called in to help solve a control problem and the solution invariably turns out to be a strong competitive advantage for the customer. To have the last word in competition, call in A-P, the first name in quality controls.

**MODEL 214**  
thermostatic expansion valve

**AIR CONDITIONING AND REFRIGERATION**

**OIL HEATING**

**GAS HEATING AND COOKING**

**MODEL 45**  
water regulating valve

**MODEL 73**  
solenoid valve

**SOLENOID VALVE  
MODEL 73  
A-P CONTROLS**

**MODEL 410**  
Trap-Dri

**MODEL 35**  
gas control

**MODEL 240-GYR**  
oil furnace control

**SERIES 5250**  
gas control

**MODEL K240ED**  
comfort control kit

**MODEL K240-ETS**  
comfort control kit

**SERIES 5030**  
gas control

**CONTROLS COMPANY OF AMERICA**  
**Manufacturers of A-P CONTROLS**  
2452 N. 32nd Street, Milwaukee 10, Wis.  
*Controls That Make Modern Living Possible*

**AP-6-57**



**FLASH!** *Humphrey* announces  
**Greatest Advance  
 in Unit Heaters!**

the NEW *Humphrey*  
**Multi-Directional**  
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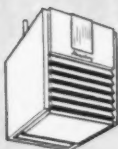
**FIRST** with BOTH concealed fan and completely enclosed controls.

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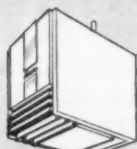
**FIRST** adapted for group or battery installations of several units using same piping, wiring and vent.

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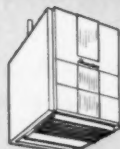
**MOST ADAPTABLE UNIT HEATER EVER DESIGNED**



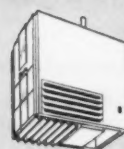
Front  
Discharge



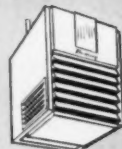
Front and  
Bottom Discharge



Bottom  
Discharge



Sides and  
Bottom Discharge



Sides and  
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**All from one source  
...and fast**



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## Good for the Soul



AN INDIVIDUAL, a business, or an entire industry must take time out at frequent intervals to analyze itself — its weaknesses, its strengths, its objectives, the roads it is pursuing toward those objectives. This process of self-analysis must be continual over the years if we are to progress.

The warm air heating and residential air conditioning industry is now in the process of some pretty critical self-analysis. In the light of its bright future — with the greatly increased needs for its products and services in the coming years — it is examining carefully its present weaknesses, its strengths, and the road it is taking. This self-analysis is to be commended, and is absolutely essential if the promises of the future are to be attained.

There is a growing appreciation of the importance of the dealer-contractor as the key to the future of the warm air heating and residential air conditioning industry. For example, practically the entire program of the National Warm Air Heating and Air Conditioning Association's annual convention in Chicago this month is focused on the dealer. The National Heating and Airconditioning Wholesalers' meeting, also in Chicago this month, will devote much attention to the dealer, too.

There also has been a growing interest in recent months in the various ways associations — local and national; dealer, wholesaler and manufacturer — can further aid and assist dealers in the promotion and marketing of warm air heating and air conditioning equipment and products.

This increased appreciation of the dealer as the key to the whole future of the industry is bound to lead to sound progress.

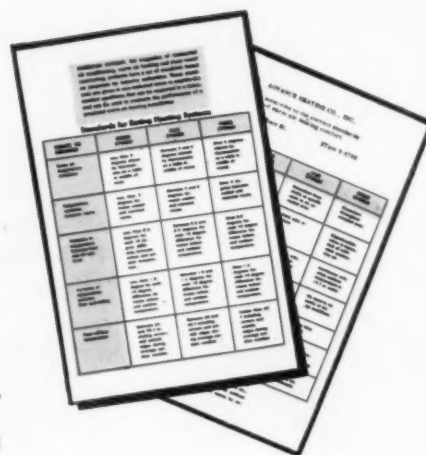
There is also good cause for optimism in what we at American Artisan detect as a greater realization of the importance of quality installations to a sound industry future. Dealers, dealer associations, wholesalers, and manufacturers have used over 30,000 reprints of American Artisan's Standards for Rating Heating Systems, a selling tool that emphasizes the "quality — not price" story. These standards have been employed as mailing pieces, in salesmen's training, in sales presentations. They have been reproduced in newspaper advertisements and in the editorial columns of newspapers, and they have been used in many other ways. It has been said often — and was said again at the recent GAMA meeting — that price cutting is not the solution for economic problems. Rather, research and the upgrading of products and services are the sound bases for an industry's progress.

It seems to us, therefore, that while the warm air heating and residential air conditioning industry faces many problems (in common with other industries), it is doing something about them. Self-analysis on the part of an individual is good for the soul. Self-analysis on the part of a business or an industry, together with the right action taken as the result, assures the bright future that lies ahead.



# Standards Can Encourage Builders to Provide Quality Heating Systems

Those builders who are getting away with minimum heating systems will change their ways when customers start asking about the *standards*



IT'S A TOUGH JOB to sell quality heating to a speculative builder at a fair price, but it can be done. Dealers all over the country have done it and are doing it. Now, with introduction of the *Standards for Rating Heating System Performance* (published in *American Artisan*, July 1957), the industry has a sales wedge which can crack the builder market.

Too many builders follow the principle of "get it as cheap as possible" and "let the buyer beware." That is why so many new homes are shackled with heating systems that meet only the minimum requirements.

Why does the builder get away with it? Simply because the house buyer has been blissfully unaware of what kind of performance he should expect from a good heating system. When he considers a house to buy, he checks the closet space, the number of rooms and their size, the kitchen and its glamorous features, and anything else that happens to strike his fancy.

He no doubt passes by the furnace with little more than a glance to note the brand name. He probably will find out what kind of fuel it burns. But about the only question he can think of to ask is "Does it do a good job of heating?" The builder passes this off with the reply, "Oh, this is a wonderful furnace. It's guaranteed for 10 years."

## Public Can Be Awakened

However, the public can be awakened. They can be told what questions to ask. Thanks to the *standards*, they now have a yardstick to use in judging for themselves whether or not a heating system will deliver the degree of comfort they should accept. They can demand quality heating, just as they demand glamorous kitchens.

The responsibility of carrying the *standards* story to the public is that of the dealer and the local association. When this story has been put across, the dealer can tackle the builder and show him the value of offering a system which will meet the "Good" classification. The dealer can

give the builder the answers to the questions that have been planted in the minds of the public.

## Must Help Builder Make Sale

A dealer selling the speculative builder has to recognize that the heating system he installs is not finally sold until the house itself is sold. The dealer must back up the builder's sales effort.

One important place to give the builder this support is in the model home or open house. The dealer should go all out to help the builder show how the heating system has been designed for quality performance and how it meets the "Good" requirements of the *standards*.

Signs and arrows can point out the outstanding features of the system. The buyer should be shown how air is filtered and humidified. How drafts are avoided. How even temperature is maintained from floor to ceiling and from room to room. How noise is reduced. How odors are eliminated.

Manufacturers' literature and point of sale devices can be utilized to the fullest. Dealers can obtain reprints of the *standards* from *American Artisan* or have them reproduced by their office staff to use as handouts to prospective buyers.

Dealer radio, television and newspaper ads can give added support by mentioning the builder's name, the locations of his houses, and by calling attention to the fact that they feature heating systems which meet the top requirements of the *standards*.

## Ads Serve Dual Purpose

This type of advertising serves a dual purpose: 1) It shows the builder that the dealer is supporting his acceptance of better heating, and 2) it shows the public that the dealer is in the forefront of efforts to improve living conditions.

In the past, dealers who have used television pro-





**OPEN HOUSES** at model homes should find the dealer or a salesman on hand to help the builder sell the heating system

grams have invited builders to be on the program to illustrate houses they are offering. This is another good way to help builders sell their houses and to tell the public about the advantages of a heating system designed to provide maximum comfort at economical cost.

To sell the builder on the advantages of installing a heating system that will meet the "Good" classification of the *standards*, it is first necessary for a dealer to sell his own ability to install the equipment and air distribution system to meet the specifications. The most effective way to do this is to prepare a detailed plan of the house, showing all essential data required to select and locate equipment to provide the comfort level specified. (Use of a printed load estimating form has a high psychological value.)

Next a formal proposal should be drawn up which specifies the equipment to be used, where and when it will be installed, a description of the duct system, who will be responsible for wiring and piping work, guarantee by the manufacturer, dealer guarantee and service policy, and a statement of the conditions the system will provide.

### Talk Without Interruptions

When this information is ready, take it with a copy of the *Standards for Rating Heating Systems* to tell the story to the builder. Pick a spot where he can be talked to without interruptions. If his office does not provide the right environment for telling the *standards* story, invite him to dinner at a quiet restaurant. Prepare the whole sales presentation ahead of time, make notes if necessary to keep the conversation on the right track. Show how the *standards* can be used to help him sell his houses. Point out that comfort is a 24-hour proposition. That can be assured because of the *standards* that are built into the heating system.

Carry the sales story from the advantages of the "Good" system to the company's background in the installation of quality systems. Tell about other quality jobs installed, service organization and reputation.

Swing the sales story back to *Standards for Rating*



**TRAINING OF BUILDERS'** salesmen in the functions and performance of a heating installation will pay off in increased awareness of the importance of winter comfort to home owners' way of life

*Heating Systems*, show him how other builders will understand its sales value to prospective homemakers and how he can answer prospects' questions about the heating system and its performance.

Builders are profit-minded and must be shown how they can expect to benefit by buying better heating systems. The strongest appeal to close the sales story is how the public is being educated in what to ask about the heating system when buying a house. Proof of public instruction along this line is in samples of advertisements where the *standards* have been outlined. (See *American Artisan* for September where this subject was covered).

In closing, offer to help the real estate salesmen handling his houses to learn how to sell the benefits of 24-hour comfort to prospects. Show how dealer and builder can cooperate in creating an effective sales effort.

Real estate agents are important to the large builder and frequently handle small builders' accounts, too. Therefore, a visit to the local real estate agents' association with copies of the *Standards for Rating Heating Systems* is a worthwhile sales promotion activity for a dealer to undertake. If the real estate agents can be sold on the use of the *standards* as a yardstick for the public to use in buying houses, they will reflect this acceptance to the builders.

One of the strong points to make with a real estate agent is to show how he can develop confidence among clients because of his understanding of modern heating and what comfort it should provide. Real estate men know the user benefit story and can do much to encourage doubtful builders to buy heating systems that meet the high standards of the "Good" systems.

In Milwaukee, where the local warm air heating association has been conducting an intensive public educational program, the people who buy houses have been asking more and more about the heating system. This story can be repeated in city after city if the power of the *standards* will be put to use.

# Study Temperature Differentials

## For Small Duct, Bypass System

**An extended plenum heating system with face and bypass dampers, floor diffusers and baseboard returns, and indoor-outdoor thermostat control maintains even temperatures on main floor but not in basement**

### **THIS IS THE FIRST**

**... in a series of six articles on extended plenum, small duct heating systems using zone control or bypass arrangements**

DEVELOPMENT OF air distribution systems to provide better temperature distribution between floor and ceiling of a room and between rooms is the consistent objective of industry engineers and the National Warm Air Heating and Air Conditioning Association. To obtain reliable data on the use of small diameter duct systems in cold climates and to determine how much effect bypass and zone control systems have in reaching the desired objectives, the field investigation committee of NWAHA-CA tested six such installations thoroughly. The committee's findings are summarized here.

#### **Branches Feed Floor Diffusers**

This article describes a furnace bypass system with an extended plenum duct system in the basement of a single story, 1285 sq ft house. Each of twelve 4 in. dia branch ducts feeds a  $2\frac{1}{4} \times 14$  in. floor diffuser near an outside wall. Return air intakes are located at baseboard level on the inside walls. The control system includes an outdoor thermostat to control the furnace bonnet temperature and a room thermostat to provide a variable discharge air temperature by controlling a face and bypass damper in the furnace bypass duct.

The house is well built, with outside walls of frame and hollow tile

veneer. The main floor has two bedrooms, one bath, living room with dining area, and kitchen. The basement is finished for a recreation room, laundry, and furnace area. The house was completed in 1952 at a cost of \$16,000 including the attached garage, but not the cost of the land.

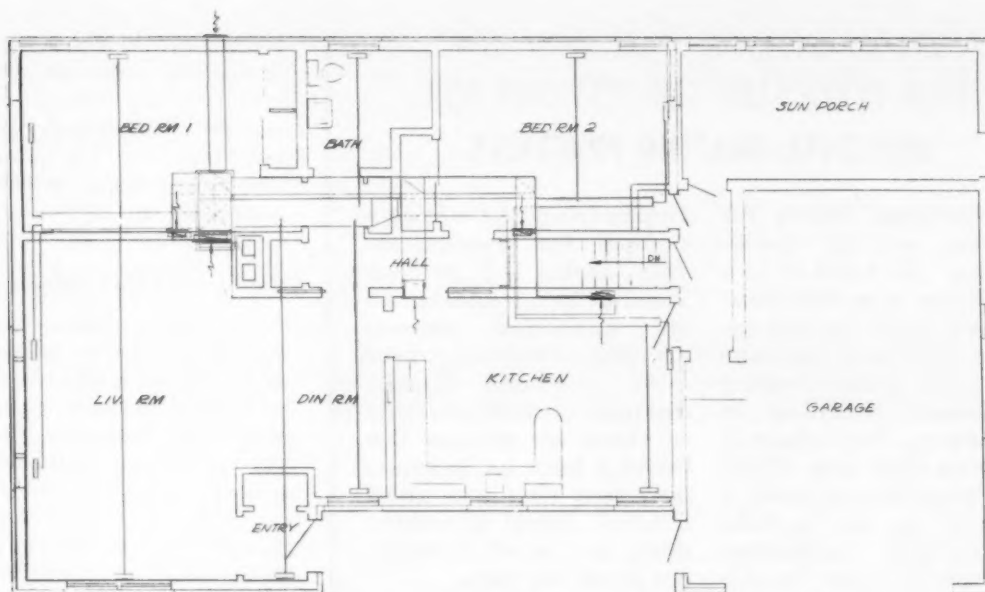
#### **Thermal Losses Low**

Walls and ceilings are well constructed with respect to thermal losses. Four inch hollow tile is separated from the 1 in. ship-lap wood sheathing by an air space. Between the  $2 \times 4$  in. wall studs are 4 in. thick mineral wool insulation bats with foil backing. Inside walls are rock lath and plaster. Above the 8 ft ceilings—also rock lath and plaster—4 in. foil-backed insulation is laid between the ceiling joists.

The attic under the pitched roof is ventilated through six 6 in. round openings in the roof overhang.

All windows on the main floor are double hung, aluminum sash except the picture window on the east wall of the living room, which is double pane sealed glass. All others are equipped with storm sash. The basement windows on the east side are 4 in. thick glass blocks. The doors are wood and are provided with storm doors.

Design heat loss of the main floor



**EXTENDED PLENUM SYSTEM** with bypass arrangement supplies 12 floor diffusers along 150 ft of exposed wall on main floor over heated basement. Four baseboard intakes collect return air from main floor. Branch ducts are 4 in. in diameter

rooms is 39,820 Btuh, and that of the basement is 10,940 Btuh, making a total heat loss for the house of 50,760 Btuh. This is equivalent to 31.0 Btuh per sq ft of floor area for the first floor. The design temperature is  $-20^{\circ}\text{F}$ . Degree days averaged about 8000 for the year.

### Dampers Control Bypass Air

The extended plenum heating system is well designed and well installed. Twelve floor diffusers are installed an average distance of about 12.5 ft apart along 150 ft of exposed wall. The furnace has a return air bypass. The amount of air which bypasses the heat exchanger is controlled by face and bypass dampers which in turn are controlled by the room thermostat. A control on the furnace also regulates bonnet temperatures according to the outdoor temperature. An outdoor air duct connected to the return air trunk has a damper that is actuated by an outdoor control. There are four return air intakes on inside walls on the main floor and one at baseboard level on an inside wall in the basement.

The oil-fired furnace is equipped

with a 1.00 gph burner and has an output rating of 112,000 Btuh at the bonnet. The blower has an 11 in. wheel driven by a 1/6 hp motor. The furnace is equipped with a humidifier.

Four ceiling diffusers in the basement are connected to 4 in. diameter ducts supplied by one of the extended plenums.

There are three  $14 \times 6$  in. and one  $24 \times 6$  in. return air intakes in the main floor baseboard. These intakes tie into two return air ducts. The  $14 \times 6$  in. basement intake grille is connected to the return trunk by a riser duct in the partition wall.

### Damper Regulates Outdoor Air

A  $12 \times 8$  in. fresh air intake at approximately ground level on the south wall of the house is connected to the return air side of the furnace by a  $12 \times 8$  in. duct. It has a modulating damper positioned by a motor which is in turn controlled by the temperature of a bulb located outdoors. It is so arranged that the duct damper moves to the closed position and restricts the amount of outdoor air entering as the weather becomes colder. Minimum setting of

the damper does not permit it to close more than 75 percent.

### Remote Bulbs Control Mixture

The control system provides a tempered mixture of return air and heated air to the living area through the action of a modulating thermostat and damper motor. Temperature of the air as it leaves the furnace heat exchanger section to be mixed with the bypassed return air is adjusted according to outdoor temperatures by a control with two remote bulbs. One bulb is in the furnace plenum just above the fan and limit controls; the other is in a protected spot on the outdoor wall. This control operates the burner to increase the bonnet temperature as the temperature outdoors becomes colder. It is electrically interlocked with the face and bypass dampers so the burner cannot operate when the damper over the heat exchanger section is closed. The blower is controlled by a conventional fan switch in the warm air plenum above the heat exchanger, where the high limit control is also located. This control system is not one especially designed for this type of job, but the controls

## FIELD TESTS SEEK SUGGESTIONS FOR IMPROVED HEATING PRACTICES

**The National Warm Air Heating and Air Conditioning Association maintains a mobile laboratory which moves into an area and surveys heating and cooling equipment installed in residences. No effort is made to alter any of the conditions found. Data is secured by the mobile laboratory technician and turned over to the**

**Engineering Advisory Council for evaluation. This series of articles summarizes reports on six extended plenum heating systems, four with face and bypass damper arrangements to shunt air around the furnace heat exchanger, and two that use zone control. Small diameter ducts are used as feeders in all six jobs.**

used by the installer are commercially available.

Control settings at the time of the test were:

Thermostat: settings (changed manually)—72 F from 7 a.m. to 10:30 p.m., 65 F from 10:30 p.m. to 7 a.m.

Fan switch: on at 130 F, off at 100 F.

Limit switch: off at 170 F, differential 25 deg

Barometric damper: 7 in.

Total cost of the heating installation to the home owner, including oil tank and controls, was approximately \$1200.

The kitchen has a 7 in. ventilating fan.

Outdoor air temperatures were relatively constant during the four day period from December 13 to 17, 1954. The minimum outdoor temperature was about 18 F and the maximum about 33 F. The sun came out occasionally, but most of the time the sky was overcast and snow was threatened. The wind was at medium strength (10 to 20 mph), mainly from the east.

Occupants were an elderly couple who had no complaints about the performance of the system.

No adjustments were made prior to the start of the test.

Most of the room temperature data

was observed on December 15. Outdoor temperatures ranged from 21 F to 27 F, and the corresponding outdoor relative humidities were between 73 and 80 percent.

Table 1 summarizes room air temperatures and temperature differentials recorded when the outside air was at 27 F and the thermostat setting was 72 F.

### Differentials Are Small

The ceiling-floor differential amounted to only 0.4 deg for each 10 deg change in indoor-outdoor temperature difference. Similarly, the 30 in. level-floor differential amounted to only 0.13 deg for each 10 deg change in indoor-outdoor temperature difference. These are unusually small temperature differentials.

In all respects the temperatures measured were most uniform and satisfactory. Temperatures in bedroom 1 were lower than in the other rooms, but the occupants preferred this room to be cooler and had partially closed the registers. The floor surfaces in all the main rooms except the dining room were warmer than the air immediately above the floor.

The ceiling-floor temperature differential in the basement was 2.13

deg for each 10 deg change in indoor-outdoor temperature difference. (See Table 2.) Similarly, temperature differential between the 3 in. and 30 in. levels was 0.24 deg for each 10 deg change in indoor-outdoor temperature difference.

### Big Floor-Ceiling Difference

This wide temperature variation from floor to ceiling is typical of other systems surveyed in which warm air is introduced into the basement rooms from ceiling or high side wall registers and the return air is taken from the floor. The temperature difference of 2.13 deg from floor to ceiling projected to the design temperature of -20 F would give a total temperature difference from floor to ceiling of 19.17 deg, which is not desirable.

Air flow rates and temperatures were not affected by repositioning of the face and bypass dampers while measurements were taken. The dampers remained in approximately the same position with about half the air passing through the bypass and the balance through the heat exchanger.

### Flow Rate Set at 500 Cfm

The calculated return air flow rate compared favorably with the rate established from the furnace heat balance:

Air flow rate at supply outlets	335 cfm
Air flow rate at return intakes	531 cfm
Air flow rate from heat balance	500 cfm

A value of 500 cfm was selected as closest to the actual flow rate. This corresponds to 2.9 air recirculations per hour. The outdoor air supply to the system during the day of the test was only about 39 cfm, about 8 percent of the total air circulation.

With the exception of one kitchen diffuser, all diffusers that were not dampered had delivery rates ranging between 20 to 28 cfm. Assuming that these rates are low and should be closer to 30-42 cfm, the values are still remarkably uniform. No consistency was noted between distance



of run and the flow rate; that is, a long run was liable to have as high a flow rate as a short run.

### Distribution Is Uniform

Considering only the undampened runs, the register air temperatures varied from 96.0 F to 101 F. This is a small variation in register air temperature. Evidence seems to indicate uniformity in heat distribution with this small duct extended plenum system. The lowest register air temperatures were measured in the dampened ducts. The reduced air flow rate, together with the longer runs, would account for the larger temperature drops in these cases.

The register air velocities as measured were low, no more than 180 fpm. It is doubtful whether these velocities are sufficiently large to overcome strong downdrafts from cold window surfaces.

Table 3 is a summary of floor surface temperatures recorded when outdoor air temperature was 26 F and the thermostat was set at 72 F. Note that the floor surfaces along the outside walls and in the exposed corners were about 4.5 deg cooler than the floor surfaces in the center of the room.

### Static Pressures Are Low

Duct static pressures were 0.09 in. for the supply side and 0.05 in. for the return side. Total external static air pressures were 0.14 in. The low pressures were partly the result of the low air flow rate through the system which accounted for the high temperature rises through the furnace. The minimum temperature rise was recorded at 149 deg. If the flow rate had been 50 percent higher, corresponding to a temperature rise through the furnace of about 100 deg, the static pressures would have been closer to 0.20 in. for the warm air side and about 0.10 in. for the return air side.

Flue-gas temperatures were high (710 F) giving rise to a large flue gas loss at the furnace outlet. Since the chimney was inside, however, some of the heat in the flue gas prob-

**TABLE 1—ROOM AIR TEMPERATURE DIFFERENTIALS**, measured in centers of rooms on main floor, were unusually low. Outdoor temperature was 27 F and thermostat was set at 72 F. There was no sun and very light winds on the day the tests were made

Room	Living Room	Dining Room	Kitchen	Bedroom 1	Bedroom 2	Average
3 in. below ceiling	73.5	74.4	72.9	72.4	72.5	73.0
30 in. level	71.5	73.4	71.8	70.4	71.5	71.8
3 in. above floor	71.2	72.7	71.5	69.6	71.0	71.2
Differentials between levels						
Ceiling-floor	2.1	1.7	1.4	2.8	1.5	1.8
30 in. level-floor	0.1	0.7	0.3	0.8	0.5	0.6
Floor surface	75.0	71.7	73.5	70.6	71.6	72.1
Floor air-floor surface	-1.8	1.0	-2.0	-1.0	-0.6	-0.9
Temperatures in deg F						

**TABLE 2—BASEMENT ROOM AIR TEMPERATURE** differentials were high under same conditions as Table 1. Thermostat was located on main floor. Temperatures were again taken in the center of each room

Room	Recreation Room (East)	Recreation Room (West)	Basement Room (South)	Average
3 in. below ceiling	76.5	75.8	72.5	74.9
30 in. level	66.1	66.7	66.5	66.4
3 in. above floor	64.5	66.3	65.0	65.3
Differentials between levels				
Ceiling-floor	12.0	9.1	7.5	9.6
30 in. level-floor	1.6	0.4	1.5	1.1
Floor surface	65.1	64.7	65.5	65.1
Floor air-floor surface	-0.6	1.6	-0.5	0.2
Temperatures in deg F				

**TABLE 3—FLOOR SURFACE TEMPERATURES** at exposed corners and walls averaged about 4.5 deg less than at center of room when the outdoor temperature was 26 F and the thermostat setting was 72 F.

Room	Floor Surface Temperature, F		
	Center of Room	Exposed Corner	Exposed Wall
Living Room	73.0	67.8	...
Dining Room	71.7	...	...
Kitchen	73.5	...	67.9
Bedroom 1	70.6	66.5	67.1
Bath	...	...	68.6
Bedroom 2	71.6	...	67.5
Averages	72.1	67.2	67.8

ably was recovered as vagrant heat before the gases left the house.

This observation is confirmed by calculations of the fuel consumption. Assuming the design heat loss of 50,750 Btuh, 8000 degree-days per season, and an efficiency of 0.75 for the overall value, the calculated fuel oil consumption is 1030 gallons per season. The owner said the system consumed 1000 gallons during the 1953-54 season. In other words, an overall efficiency of 0.75 was obtained.

The test data on this job would have been more comprehensive had it been possible to plot the position of the face and bypass dampers in the furnace, and the position of the damper in the outdoor air supply duct. However, the face and bypass dampers were in the mid-open position throughout the tests except during the night when the thermostat

was set for 65 F, and during the morning pick-up period.

The blower operated continuously when the outdoor temperature was 35 F, which was the warmest temperature experienced during the test period. There was no opportunity, therefore, to determine at what outdoor temperature the blower would start to operate intermittently.

From the data obtained on burner operation time it was observed that when the outdoor air temperature was 30 F the burner operated almost 22 per cent of the time. By extrapolating the data to design weather conditions, the predicted burner operating time was only about 55 percent for a -20 F day. This indicates a large reserve capacity as well as the possibility of reducing the input rate to the furnace.

Another small duct system will be discussed in next month's Artisan.

<p><b>BAXTER FURNACE COMPANY</b></p> <p>HEATING AND AIR CONDITIONING ENGINEERS 1948 N. Main Street DAYTON 8 OHIO</p> <p>Mr. Robert Jones 244 Main Street, Dayton 2, Ohio</p> <p>Dear Friend:</p> <p>You will find enclosed, two cards that will be worth money to you and all you have to do is follow the instructions outlined below.</p> <p>THE BAXTER FURNACE CO. WANTS PROSPECTS - AND IS WILLING TO PAY FOR THEM</p> <p>If you know of anyone planning on installing a new coal, gas or oil furnace, air conditioning; oil or gas conversion burner, first be sure to date the card, fill in prospects name and address, then fill in your own name and address and drop card in mailbox.</p> <p>The date on your card is very important, for the commission on each prospect is paid on the first card mailed in. For instance, if you mail a card dated the 3rd and your neighbor mails one dated the 5th, then you will be entitled to the commission, as all cards are filed as soon as received.</p> <p>After sale is made and the furnace, burner or air conditioner is installed, The Baxter Furnace Co. will mail you a check for \$10.00 (Ten Dollars) for furnace or air conditioner prospect.</p> <p>After sale is made for conversion burner and installation made, The Baxter Furnace Co. will mail you a check for \$5.00 (Five Dollars).</p> <p>The above amounts will also apply to equipment installed in your own home.</p> <p style="text-align: right;">Yours truly, <i>Vance B. Heymann</i> BAXTER FURNACE CO.</p> <p><small>P. S. If you are planning on having your heating system modernized, cleaned or repaired this year, we would advise that you have this work done during April, May or June. For our forced air furnace users we have a complete line of air cooled air conditioners that can be added at any time to your present system with no duct changes. Please call at any time for a free survey, we are at your service.</small></p>	<p>COAL-OIL-GAS FURNACES</p> <p>CONVERSION BURNERS</p> <p>REFRIGERATION</p> <p>AIR CONDITIONING</p> <p>V. B. HEYMANN</p> <p>PHONE OR TTY</p>
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## This letter and these cards . . .

Mail to BAXTER FURNACE CO.  
1948 N. MAIN ST. DAYTON 8 OHIO

Date: Feb 10, 1957

Prospect's Name: John Doe

Address: 100 Blank St.

Conversion Prospect ☐ Incinerator ☐ Furnace Prospect ☒

Your Name: Bob Jones

Address: 246 Main St.

Mail to  
1948 N. MAIN ST.

Prospect's Name: Bill Smith

Address: 123 First Ave.

Conversion Prospect ☐ Incinerator ☐ Furnace Prospect ☒

Your Name: Bob Jones

Address: 246 Main St.

*help dealer to . . .*

# Cultivate Customers' Aid In Finding New Prospects

For many years this company has offered its customers cash rewards for providing leads which turn into sales. The success of the program, they believe, is due to consistent use

SHOULD A DEALER offer customers a cash reward for sales leads? This is a frequently asked question. Some dealers have answered "No." But others can point to outstanding sales results to lend support to their affirmative point of view.

For 20 years Baxter Furnace Co., Dayton, Ohio, has been offering cash rewards to its customers for leads which develop into sales. They currently pay \$10 for each lead resulting in the sale of a furnace or central cooling unit and \$5 for a conversion burner sale.

In 1956 they paid out a total of \$295 in these cash rewards for leads. In addition, they received a substantial number of leads from customers who supplied them without requesting any payment.

Consistency is the key to the success of a cash reward program, says Vance B. Heymann, who operates the com-

pany. "You can't just send out one letter and then drop the idea and expect good results," he declares. "You've got to build it up over a period of years." And that's just what his company has done.

### Mailing Made to All Past Customers

Once each year the firm makes a general mailing during the off season to its full list of past customers. About 2000 letters like the sample shown in the above illustration are mailed. This particular letter resulted in 46 sales. The total cost of the mailing was \$125. In addition, during the year the same letter was sent to each service customer after a call.

Enclosed in each letter are two business reply cards for the customer to fill out with the names of prospects.



**SALES RECORDS** for 20 years are checked by Vance Heymann to prove effectiveness of offering cash rewards for leads provided by customers

Often customers will phone in leads, and the card is filled out at the office with the information given over the phone. Prospects are quickly followed up with a sales call. In many cases the customer who sent in the lead has already given the prospect a sales talk.

Several months after each new job has been installed, Mr. Heymann makes a personal call on the customer to see whether or not he is completely satisfied. He also makes it a point to explain the company's system of paying cash rewards for leads.

A policy of gradual business expansion has been followed by Mr. Heymann. The company specializes in the modernization field and ordinarily employs eight installers. He has deliberately limited the growth of the business to what he considers can be handled without sacrificing quality. He turns down jobs if they appear to be unprofitable. By following this policy, he finds he is better able to keep a close control of operations to assure efficiency and customer satisfaction.

### **Newspaper Ads Play Prominent Role**

Newspaper advertising has played a prominent role in the company's sales promotion for many years. Advertising is budgeted at 3 percent of gross sales volume. The present advertising schedule calls for two ads a week in the local newspaper. They are run in a preferred position at the top of the page and are usually 2 columns wide by 3 in. deep.

Results tabulated by Mr. Heymann have shown ads of this size run twice a week are more effective than a larger ad run only once a week. Copy in the ads emphasizes custom design, and free heating surveys and estimates.

A sales presentation, Mr. Heymann says, should always be made in a professional manner to give the prospect the impression that his job will be handled with skill and efficiency. Each Baxter Co. proposal is attractively presented in a folder with the prospect's name on it. It includes a floor plan with the proposed modernized heating system drawn in, manufacturer's literature show-



**LEADS SUBMITTED** are kept on file and check sent to customer after sale is made. In case of duplicate leads, payment is made to first sent in

ing the specified equipment, and a complete price quotation. The salesman also carries sample registers so that the prospect may make a selection.

### **Each Proposal Includes Cooling Cost**

In addition, each heating proposal includes a figure for the cost of adding cooling equipment, even though the prospect may not have mentioned it. The salesman points out that the system is designed for the addition of central cooling with a minimum of difficulty. He can also mention that money will be saved if the cooling equipment is installed at the same time that the heating system is being modernized.

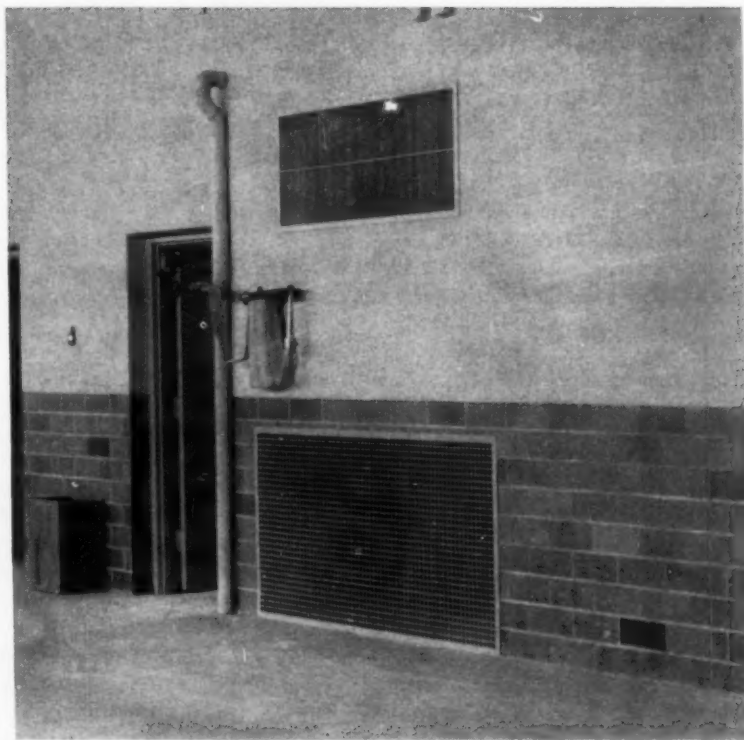
This practice has resulted in a number of cooling sales. However, if the prospect does not buy cooling immediately, the thought has been implanted in his mind and a future sale may be set up. On every furnace installed without cooling, a sticker is attached to remind the customer that it can be added.

Before and after pictures are taken of each job showing the old equipment and the new. A set of these pictures is sent to the customer when the warranty is mailed. This not only helps make the customer more satisfied by pointing out the improvement made, but it also helps develop new business. Mr. Heymann has found that customers will frequently show the pictures to relatives, neighbors and friends. This will give them an opportunity to discover others who are interested in modernizing their heating systems. The customer can then refer these leads to the company and claim the cash reward when the sale is made. In addition, salesmen can use the pictures as examples of the company's work in future presentations.

Baxter Co. has found that cash rewards for leads are a sound means of bringing in new customers. But the question of whether or not to use this technique must be answered by each dealer for himself after careful study. However, as Mr. Heymann suggests, such a plan must be given time to develop if tried on an experimental basis.

# Here's Tested Pattern for Installing Armory Warm Air Heating Systems

**Similarity of army reserve training programs has more or less standardized housing and comfort requirements. This existing installation will provide profitable pointers for many armory heating jobs**



**WARM AIR IS SUPPLIED** to the assembly hall directly from adjacent furnace room through grille at top. Return air flows into floor-level return opening through assembly hall from all adjoining rooms

THE EXTENSIVE ARMY RESERVE training program now underway has shown the need for a number of new armories throughout the country. One hundred thirty-five new buildings are now planned. Most are designed to accommodate 100-man training programs. Warm air heating systems have proved very effective in ten National Guard armories erected in Iowa and the installation practices followed in these armories can easily be applied to the warm air heating systems being considered for the reserve training program.

The typical 100-man reserve training unit requires an armory similar to the one erected at Knoxville, Ia. and described here. Previous articles have described in detail the armory building program, told where to submit bids and how to estimate and prepare a bid for an armory installation. This article outlines recommended procedures for installation of the heating system in one of these armories.

The Knoxville building is one story and rectangular in shape, with the large assembly room in the

center. This room is 58 × 120 ft, 16 ft high and elevated above the auxiliary rooms on three sides. The auxiliary rooms are 22 ft wide and have 10 ft, 8 in. ceilings.

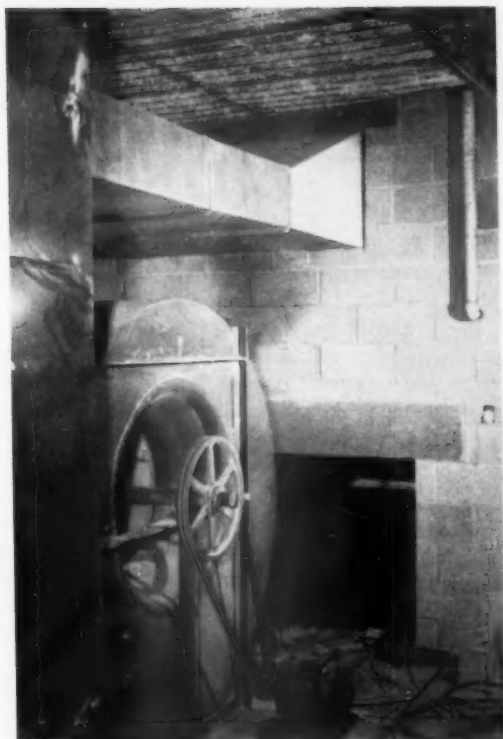
The assembly hall has a large electrically operated door in the rear (east end) to admit trucks and other large motorized equipment.

Along the north side of the building is a 22 × 83 ft rifle range, a 7 × 22 ft maintenance locker, a 12 × 17 ft vault, and a 22 × 41 ft storage room. The vault is unheated.

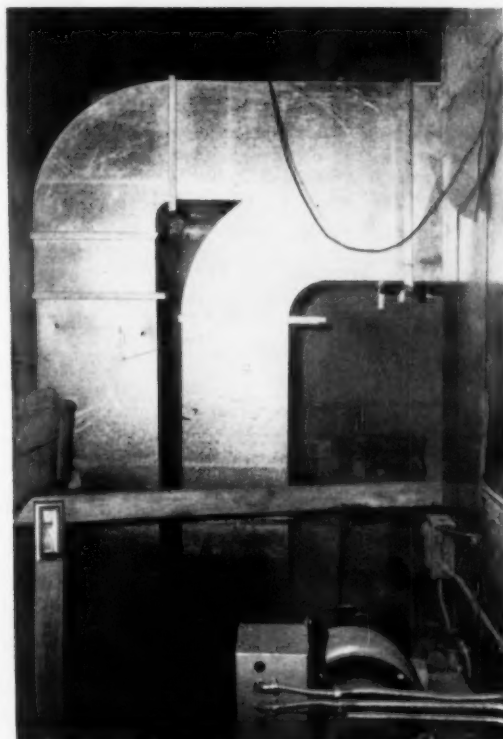
On the south side of the assembly



**THIS SERIES** of articles, describing the impressive armory building program now underway by the U.S. Army Corps of Engineers throughout the country, is presented to help warm air heating dealers cash in on this lucrative new market



**BIG BLOWER** supplies 14,100 cfm to armory. Assembly hall is supplied 5450 cfm through 8 ft duct at top.



**FEEDER DUCTS TO TUNNEL** air distribution system are ready for installation of zone control dampers and the motorized actuators

hall are three 20 × 22 ft classrooms, a 9 × 22 ft kitchen, a 17 × 22 ft furnace room, and a 31 × 22 ft toilet and shower room. Across the front of the building are three private offices (two are 10 × 22 ft, the third 21 × 22 ft); a 7½ × 22 ft vestibule; a 13 × 32 ft library; and a 37 × 32 ft locker room. Total area is 16,332 sq ft.

#### Large Furnace Required

The heat loss estimate indicated a furnace with a capacity of

1,080,000 Btuh output would be needed. The furnace is connected to a return plenum containing a 33 in. diameter, backward curved, inclined blade, non-overloading, double width, double inlet blower. The specifications called for a blower that would deliver 14,100 cfm against ¾ in. static pressure. Outlet velocity was designed for 1300 fpm at a blower speed of 500 rpm. Tip speed was held to 4350 fpm and power requirements of the blower motor are 2.4 hp. (A 3 hp motor was installed.)

The blower motor has overload

and low voltage protection and a magnetic starter. Because the motor was mounted inside the air distribution system, noise reduction devices were used both at mounting points and at the belt tightening device.

The blower plenum is encased by 20 ga sheet metal panels, joined with standing seams. Braces of ¼ in. angle and channel iron minimize vibration. Two access doors were installed, one for servicing the blower motor, bearing and belts, the second for providing access to the filter bank.



RETURN AIR from rooms passes through grilles in doors into assembly hall's central return point



BASEBOARD DIFFUSERS CONTAIN grille-like openings which can be partially closed to adjust for required air volume

Smoke pipe breeching is 24 ga steel. Cleanouts are installed at two accessible points.

The furnace has a combination gas and oil burner, a draft diverter and all electrical controls required for safe and controlled operation. Combustion air is provided for the burner through a 16 × 16 in. outside louvered air intake and duct system.

The 1000 gal fuel oil tank is buried 12 ft outside the building opposite the furnace room wall. The tank is equipped with a 3 in. fill line and a 1½ in. vent pipe. It also contains a manhole opening for future inspection. Oil is supplied through a ½ in. o.d. copper line with strainer, filter and shutoff valve located at the burner. A ¾ in. copper line returns the oil to the tank. There is no shutoff valve in the return line. Before being buried, the tank and all underground pipes were thoroughly coated with asphaltum.

The fuel tank is set on a 4 in. gravel bed and is weighted in place by concrete ballast at four points. The tank contains a fuel gage that registers on a remote instrument located on the wall of the furnace room.

### Perimeter System Specified

A perimeter air distribution system is employed. The supply ducts are imbedded in and below the con-

crete slab floor. The ducts are made of concrete and have sheet metal connectors to the outlets. Due to the size of the main trunk lines, the ducts are termed tunnels, and 16 × 16 in. access doors were installed at the entrance to each trunk line.

### Area Cut into Six Zones

The supply air is divided into six zones, each controlled by a thermostat that operates volume dampers located in ducts supplying the area. Zone 1 is supplied by air discharged into the assembly hall from a 60 × 24 in. grille in the inside wall of the furnace room and connected to the supply plenum by an 8 ft duct. This grille is 7 ft above the assembly hall floor and discharges 5150 cfm into the assembly area. This is not all the air being discharged into the assembly area as each room around the assembly hall contains a door grille to admit air to the central return point. The thermostat for zone 1 is located on the east wall 84 ft diagonally from the supply grille. The area in this zone totals 6960 sq ft.

### Glass Influences Quantities

In zone 2, air is supplied through perimeter baseboard diffusers to the three classrooms and the kitchen. The air volumes supplied are: classroom 1 (a corner room with two base-

board diffusers, one 4 ft and one 8 ft section), 520 cfm; classroom 2 (with one 8 ft baseboard diffuser), 330 cfm; classroom 3 (with one 8 ft baseboard diffuser), 280 cfm; and kitchen (with one 4 ft baseboard diffuser), 160 cfm. The variation in air quantities to classrooms 2 and 3 is due to the difference in glass area in each room. Zone 2 is controlled by a thermostat located in classroom 1 because of the additional heat loss through the two exposed walls. This zone comprises 1510 sq ft.

### Thermostat Is Protected

In zone 3, air is supplied to the toilet and shower room through a 24 × 8 in. grille high on the partition wall. The volume of air supplied is 490 cfm for 682 sq ft of space. The zone is controlled by a thermostat located in an area protected from air currents by a metal partition.

Zone 4, a 1600 sq ft area, consists of the locker room, which is supplied by an overhead duct in a furred down portion of the shower room ceiling, and the library, supplied by an underfloor duct and one 8 ft baseboard diffuser. Warm air for the locker room is discharged from a 36 × 12 in. grille high on a partition between the shower room and the locker room. One thousand cfm is directed to the locker room and 260 cfm to the library. The

thermostat which controls the zone dampers is located on the same partition wall as the locker room discharge grille, 12 ft from the point of air discharge.

### **Tunnels Supply Two Zones**

Zone 5 consists of the front entrance vestibule, three private offices and the storage room. This area is supplied with 3150 cfm through an underfloor tunnel. The storage room (a corner room) has one 12 ft and one 16 ft baseboard diffusers, providing a total air volume of 1270 cfm. The small private office next to the store room receives 390 cfm through one 8 ft baseboard diffuser. The large center office receives 700 cfm through a 16 ft baseboard diffuser, and the small end office has one 8 ft baseboard diffuser through which 350 cfm is supplied. The vestibule is heated by two 18 × 8 in. floor diffusers (one at each side of the 7 ft, two panel door) to supply 440 cfm. This zone is 1979 sq ft. Its thermostat was installed in the large central office which will be occupied more regularly than the smaller end offices.

Air for zone 6 is also supplied by a tunnel running parallel to the underfloor ducts for zones 4 and 5. These tunnels run from the furnace room on the south side of the building to the front (west side), across the front and then along the north side. Zone 6 consists of the maintenance room and the rifle range. The 154 sq ft maintenance room is heated through a 4 ft baseboard diffuser supplying 140 cfm. The rifle range has one 20 ft and one 28 ft baseboard diffusers. From these two diffusers 2290 cfm of air is directed into the 1826 sq ft area.

The thermostat for zone 6 is located on the inside wall near one of the two doors through which air enters the assembly hall.

### **Tunnels Are Graduated**

Underground tunnels are graduated to handle the various air volumes required. The rectangular tunnels are located near the outside

foundation wall, which actually serves as one side of the tunnel. This side has 2 in. of glass fiber insulation. The bottoms of the tunnels are lined with 1 in. of the same type of insulation.

To prevent overheating of the floor above the ducts, 1 in. of insulation was inserted between the top of the tunnel and the underside of the concrete slab floor.

### **Assembly Hall Is Plenum**

The assembly hall is utilized as a huge return air plenum. Air is discharged into the assembly hall from all rooms at the same rate at which it is supplied to them. Each door has a grille in the lower panel. These grilles are 25 × 12 in. or 25 × 24 in., depending on the air volume supplied the room and the number of doors. Air supplied to the shower room and toilet is exhausted through a power roof ventilator, and does not enter the return system.

Return air from the assembly hall is picked up by an 80 × 40 in. grille at floor level. Makeup air from outdoors is brought into the return air plenum through an air duct connected to a louvered 60 × 12 in. intake in the south wall of the furnace room.

The two return grilles in the doors to the rifle range are closed off during target practice to keep contaminated air from the rifle range out of the air distribution system. A powered roof ventilator with a capacity of 1980 cfm handles the ventilating requirements for this area during target practice.

Air from the locker room is exhausted by a 2530 cfm wall fan. All exhaust fans are controlled by manual switches.

### **Night Setback Advised**

Because the armories are constantly occupied by regular army officers and enlisted personnel assigned to the training program, a night setback control system is advisable. The night system used at the Knoxville, Ia. armory consists of a thermostat located in the assembly area near the return air intake and so wired that when it is set for night operation it overrides the zone control systems.

The editors acknowledge the cooperation of Elwood Arendts, Campbell Heating Co., Des Moines, Ia. in providing information for this article, which completes the series on how to get in on the rich armory heating market.

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## **Cognovit Note Assures Quick Collection**

DEALERS CAN USE cognovit notes, or judgment notes as they are sometimes called, which are promissory notes containing the power of an attorney whereby the holder or his agent may appear in a court and confess judgment on the note against the maker. This, observes an item in the Robertson Reporter, means that, if you have taken a cognovit note from your customer, and he fails to pay you at maturity of the note, you or your attorney can immediately obtain judgment against your delinquent customer by presenting the note in the court having jurisdiction over the subject matter. This is usually in the county where the debtor lives or owns property.

By immediately obtaining judg-

ment you are ready to levy against any available assets of your customer or his personal earnings. This may mean the presence of certain assets which will not be available for attachment at a later date, or it may mean that you will have a priority over other creditors' liens, which could be the difference between payment and a loss.

There is a saving of time and money by not having to go through the normal processes of law to obtain a judgment. The amount due is specified on the note, eliminating a problem which so often arises when obtaining a judgment on an open account where the debtor deliberately disputes the amount due because there is no record of agreement.



STANDARDS CARD is explained by Al Gogolin to prospect who visited showroom

"THE BEST SALES TOOL we've used in a long time is Artisan's *Standards for Rating Heating Systems*," said Elton Gogolin of Gogolin Heating Co., Toledo, when Artisan's field editor visited his place of business recently. Mr. Gogolin is one of Toledo's key dealers, as revealed in the biennial survey conducted by the market research division of Keeney Publishing Co. The Gogolin company has used the *standards* both as a display piece in the showroom and as an aid in the presentation and closing of sales in the prospect's home.

Artisan's field editor was invited to accompany Walter Van Slambrouck, one of the company's four salesmen, on several calls. This was an opportunity to see first hand how this dealer has put the *standards* to work.

At the first stop, the furnace cleaning crew had found five cracks in the cast iron firepot of a 27-year-old hand-fired gravity coal furnace. The owners of this two-story house saw the need for modern heating equipment and realized that their one-supply, three-return air distribution system was badly out of date.

#### Rooms Too Hot or Cold

The house has four rooms on the first floor and two rooms and a bath

# Key Dealer Shows How Standards Sell

Artisan observes a key dealer's salesman as he makes two sales where price could have been the most important subject. Thanks to the *standards*, the decisions were made on quality

on the second. The housewife wanted a supply register in each room. The family had complained of overheating in the room with the only supply opening, cold temperatures in all other rooms, and drafts in the dining room where one of the cold air returns was located. The structure of the house did not lend itself to convenient location of the branch ducts.

The prospects were obviously people of modest income. They expressed concern over the cost of modernizing their antiquated system. They were quick to indicate that they would not give an order for the job until they had talked to several other dealers. They asked for a price almost before the salesman had a chance to determine the work to be done.

#### Salesman Goes to Work

Then the salesman went to work. He avoided the request for a flat price by asking for more information about the most suitable location for supply openings in relation to furniture placement. Then he pointed out that extensive modifications of the existing system would be necessary to overcome the discomforts tolerated during previous winters. He told the prospects frankly that such changes could not be accomplished for a low price.

At this point he introduced the

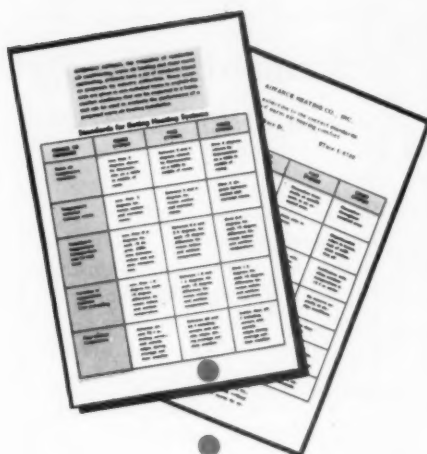


FEATURES on the display furnace are explained by Walter Van Slambrouck to prospect, showing how the *standards* are achieved

*standards*. He explained that it takes more than a new furnace and a few new ducts to make a home comfortable. He pointed out that unless they bought carefully they could end up with a new system that would only provide more discomfort. He showed them the difference between the "good," "fair," and "poor" systems as outlined on the *standards* card. He told them that his company would only sell them a system which would meet the specifications of the "good" classification.

Since he had noted earlier in the conversation which conditions had most bothered the prospects in their old system, he concentrated his discussion on these points. He concentrated on room air temperature variations, temperature variations between rooms, floor surface temperatures,





COMPANY NAME is featured prominently on the building. Passers-by will know this is the dealer who sells systems meeting the standards

drafts, furnace capacity and fuel burning efficiency.

As each of the *standards* was discussed, the prospects were asked whether or not they agreed that they would prefer to have a "good" system. The *standards* card was handed to them, and as the desirability of providing comfort in each part of the house was discussed, the prospects were referred to the points on the card.

### Worth Added Cost

It soon became evident that only the "good" system would provide the type of comfort that these people desired. They were forced to admit that this additional comfort was worth the additional cost. The salesman made it clear that even if some of the desirable features were eliminated the major costs involved couldn't be greatly reduced except at the sacrifice of comfort. This effective use of the *standards* created in the minds of the prospects the desire for a quality heating system, and price was relegated to a secondary position where it belongs.

To further eliminate the price problem the salesman explained how the cost could be handled on a monthly payment plan. At this point the prospects appeared to have forgotten their intention to obtain bids from other sources. They gave the go ahead for a heating system which

would provide them with the comfort outlined in the *standards*.

### Furnace Beyond Salvage

A second call made by salesman Walter Van Slambrouck (with the field editor as an observer) was in response to a call from another homeowner with a hand-fired gravity coal furnace. When it had been dismantled for cleaning and re-cementing, it was found that the cast iron sections were warped from overfiring and split at the joints in so many places that all four sections and the grates were beyond salvage.

The need for a modern, automatically-fired furnace was evident to the owners. They also complained of overheating in several rooms near the furnace and cold temperature conditions in rooms supplied by leaders which had greater static resistance.

The man and his wife agreed that they did not wish to make temporary repairs nor put off modernization. When the *standards* were explained to them, they were quick to agree that they wished to select a new furnace and plan additional modifications to their system in order to obtain the comfort conditions outlined under the "good" classification.

As the salesman unfolded his recommendations, the prospects exchanged comments about the 12 points listed on the *standards* card. The *standards* provided them with a yardstick to use in purchasing a new heating system. As each point was discussed, they became convinced

that Gogolin Heating Co. would provide the type of system they wanted for their home. There was no mention of calling in other dealers to quote on the proposed system.

The salesman mentioned that payments could be handled on a monthly basis. However, here a stumbling block appeared. The prospects were already burdened by monthly payments on the house, furniture, appliances and a car. Any large additional monthly payment would greatly tax the family's ability to pay. It seemed that they were a doubtful credit risk.

### Sale Seemed Lost

The sale seemed lost as a further obstacle presented itself. While the salesman was talking, the lady received a call for a friend who had purchased a heating system three days before. The brand name was mentioned and the price of the job was quoted. The friend's furnace was not nationally known and the price was \$150 less than that which had just been quoted by the Gogolin company salesman.

When the housewife told about her phone conversation, the salesman carefully reviewed the *standards* story. Finally the lady said, "I'll be getting a better heating system for the extra cost. I'm going to show my friend these heating *standards*."

(Editor's Note: Pride of ownership is a powerful selling force and the point expressed by this lady can be developed as another approach to



COMPLETE STOCK of fittings and equipment enables the company to handle all jobs with a minimum of delay

using the heating *standards* to sell the recommended system at the price asked.)

### Suggestion Accepted

The salesman was able to overcome the financing problem because he had paid close attention to what his prospects were saying. During the conversation he had heard it said that a relative could possibly be counted on to loan part of the money needed to put the heating system back into operation. Therefore, he suggested this money be used to make a sizable down payment, which would bring monthly payments down to the point where they could be handled.

The points previously discussed were summarized by the salesman in his closing. The prospect agreed to buy the recommended heating system at the price which was \$150 higher than the friend's new system.

In this example the *standards* served both the prospects and the dealer. They made the prospects aware of the importance of insisting on a "good" system. They were willing to go to great lengths to pay the price for this system. The dealer made the sale without having to compromise quality and protected his reputation as a quality installer. In addition, he obtained a fair price with profit to justly compensate him for his technical business knowledge.

After both of these sales, the pros-

pects were given literature describing the type of furnace they were buying and a *Standards for Rating Heating Systems* card. The literature described features of the furnace and the *standards* card described the performance that could be expected.

### Standards Display Prominent

The *standards* card is prominently displayed in the company's showroom. When a prospect calls he sees the *standards* card sitting on top of the literature counter with the motto "We subscribe to the correct *standards* of warm air heating comfort" printed at the top of the card.

Prospects are shown the various types of equipment on the display floor. Manufacturers' literature is used to explain how the equipment has been designed in accord with good engineering practice. The *standards* are individually reviewed and the equipment is again used to show that it has been designed to achieve the conditions outlined under the "good" classification.

Gogolin Heating and Air Conditioning Company is managed by Elton (Al) Gogolin, who says "Because heating prospects are sharper buyers than they used to be, they immediately recognize the value of using the heating *standards* as a yardstick when measuring the relative merits of several proposals. Salesmen also find that prospects will comment on the *standards* and this

## Standards Rapidly Gaining Support

A 20-page special section of the July American Artisan presented a powerful selling tool for the warm air heating industry — the *Standards for Rating Heating Systems*. This section featured a card containing Artisan's condensed version of twelve comfort standards, described in non-technical language for home owners. The special section described how the *standards* could be incorporated into a merchandising campaign by any dealer interested in selling quality — not price.

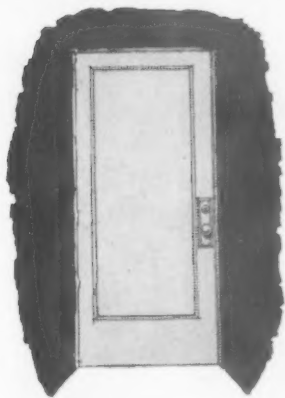
In August and September, Artisan articles explained in detail how the standards could be promoted through direct mail and newspaper advertising. Other articles told how wholesalers and dealers have used the *standards* successfully in promotion programs.

Reactions from all segments of the industry show that the *standards* are rapidly being accepted as an important and valuable sales tool to use in selling the public on quality.

Reprints of the *standards* card are available at 2 cents each from American Artisan, 6 N. Michigan Ave., Chicago 2.

helps the salesman to quickly analyze prospects' interests."

Another statement made by Mr. Gogolin was, "The *standards* raise sales presentations above the usual conversational level as they give the salesman something definite to talk about. The prospect has something that is concrete and can be referred to. It eliminates the intangible description of the conditions that are achieved by the heating system. The *standards* make it possible for salesman and prospect to meet on a common ground."



# Cooling Can Open Dealer's Door to Future Profits

Expansion of a dealer's business today in the summer air conditioning field will give him the experience and trained staff he'll need for tomorrow's boom

WARM AIR HEATING dealers and sheet metal contractors have over recent years become the leading element in the residential air conditioning market. Artisan surveys show that 86 percent of its dealer readers also handle residential central cooling. The dealer who concentrates time and energy in the cooling field will be opening the door to rich rewards.

McManus Heating and Refrigeration Co., Pittsburgh, is an example of a heating dealer who has found growing profits by expanding his business in this direction. John L. McManus has been a dealer for eight years. Starting with heating he soon expanded into central residential cooling. Next he added commercial air conditioning. In line with this move, he built up his service staff by adding men with a refrigeration background.

"We have found that you can take a good refrigeration serviceman and with proper training turn him into a good heating serviceman without too much difficulty," Mr. McManus says. "This gives us an important new source for service personnel. It also gives us a serviceman who can be kept busy all year around. Furthermore, the opportunity to learn a new field sharpens his appetite and holds his interest."

## Must Build Effective Organization

Any heating-cooling dealer who hopes to achieve future success must concentrate on building an effective organization of highly skilled men. "In cooling you've got to have good engineering and good service. You have to be able to provide what the job needs, not merely what you have to sell. And the same applies to heating, if true comfort is to be provided," he declares.

Dealers too often fail to make use of the engineering knowledge that the industry has acquired, Mr. McManus says. A dealer must continually look for new ideas and then apply them. Dealers who shy away from cooling are often the same ones who were reluctant to learn about perimeter heating, and they're probably staying clear of such things as electronic air cleaners, too, he adds.

Most dealers were quick to see that perimeter heating was a major advance in heating technology. Some, how-

ever, still fail to apply its principles. The truly progressive dealer, Mr. McManus states, must look beyond perimeter heating. "We can't just sing the perimeter song for the next 10 years. We've got to keep alert to future trends and develop new sales appeals," he points out.

## Standards Used in Sales Program

In keeping with this philosophy Mr. McManus was one of the first dealers to recognize the importance of Artisan's heating comfort *standards* as a sales tool. He has ordered an extra supply of the rating cards for use in his own sales program.

"This week we closed a \$9000 heating, air conditioning and air cleaning job for a large residence. It features perimeter design and zone controls. One of the tools we used to close this sale was the *Standards for Rating Heating Systems* sales card," Mr. McManus said. He points out that he believes it is a mistake to rely on talking alone in making a presentation. He prefers to provide the prospect with written materials, such as this sales card.

Another effective sales tool used by this company has been photographs of installations. Several of these photos are actually left with the customer. Even if the sale is lost, the prospect will know what a quality job should look like. If he has purchased a cut-price job, he will often see why for himself by comparing the pictures with what he got.

Dealers who are leaders and pacesetters, he believes, will always find their services in demand. But the road to becoming a leader is paved with hard work and calls for an intense desire to attain professional respect. A dealer must have a genuine love for his work and continually strive to learn more about it.

As an example of how dealers should keep up with new industry developments, he cites the case of the electronic air cleaner — a device he believes every dealer should sell. In sales presentations he likes to point out that the average person uses six pounds of food and liquid and 30 pounds of air each day. People are careful about what they eat and drink, he continues. Why



**GOOD ENGINEERING** is essential in a successful cooling business. A dealer must keep up with new industry developments and apply them

shouldn't they be careful about the air they breathe? The air cleaners also have a strong appeal to allergy sufferers and make the chore of house cleaning easier. In the custom house field, Mr. McManus has found it easier to sell electronic air cleaners than cooling at the time of the original installation. However, all of his jobs are set up so that cooling can be easily added at a later date when the customer finds it has become a necessity.

The McManus company avoids project-type installations and restricts itself to modernization and the custom house field. Mr. McManus does not believe it is a good idea to switch crews back and forth between project work and custom jobs. They call for different techniques which aren't easily interchanged.

### **Prospects Don't Always Look for Cheapest**

In the custom house field, he points out, people are not always looking for the cheapest thing they can buy. They will buy quality if you explain the difference. It is a mistake for a salesman to approach a customer with the idea in the back of his mind that price will be the determining factor. This type of negative thinking, he says, is the biggest thing that salesmen and dealers have to guard against.

If you go to a customer with quality design ideas, carefully developed, you will automatically eliminate many of your competitors, Mr. McManus says. He has found that even in cases where the sale is lost because the customer insists on the lowest price the quality dealer can win out in the end. You will have given the price buyer an idea of what a quality system should be. He will use your ideas to demand a better job from the dealer who has tried to cut quality to sell price. This cut-price dealer will be taught a lesson and your reputation will be enhanced.

Furthermore, the engineers do not use formulas alone when estimating. They make a complete estimate based upon a detailed floor plan and carefully developed layout.



**ESTIMATING PROCEDURES** are checked by John McManus against blueprints and the heating layout. Accurate estimates are the key to profits

To keep their estimating accurate, they keep close check on cost trends when the job is installed.

Mr. McManus feels it is important to be located on a busy street and to have a showroom for equipment display. His men are neatly dressed in uniforms and the trucks are kept in good condition. This company has eight trucks and all are less than a year old. They have been professionally painted, following the same color scheme so that they can be easily recognized. They are washed frequently.

### **Servicemen Look for Trouble**

The company stresses quick response to service calls day and night. Servicemen are trained to look for potential trouble before the customer needs to complain about it. If the heating system is old and ready for replacement, or if opportunities for adding cooling or for accessory sales are found, the serviceman is trained to mention the fact to the customer. If it appears there is interest in modernization after a brief conversation, the prospect's name is referred to the sales department. Servicemen are advised to be restrained in pushing new equipment. The selling is left up to the salesman.

### **Market Analysis Points to Direct Mail**

Newspaper, radio and television advertising are not used by the company because Mr. McManus feels public confidence in such ads in this particular area has been undermined by certain local companies in different fields who use high pressure tactics and bait advertising in these media. "We feel it would be unwise to have our firm identified with this group, even though we recognize the value of these three advertising vehicles," he declares.

Therefore, the company relies mostly upon direct mail. Three or four major mailings are made each year. They include a letter on cooling, one on heating and one on service. The subject of the fourth letter varies.





**ATTRACTIVE NEW TRUCK** is one of eight operated by the company. Professional painting and frequent washing make them a good advertisement

One letter which has been used with success is headed, "Five Minutes Reading This Message May Save You Twenty Years of Grief." It advises: "If you buy a heating or air conditioning system in haste and if you buy from the company with the lowest price, your decision may be harmful to you for the next twenty years. You will be living with your decision for a long time. We suggest you think it through very carefully. An informed buyer is a discerning buyer. If you use the check list below, your buying judgement will be sharpened."

#### Letter Lists Points to Consider

The letter then lists eleven points to consider when selecting a dealer to do heating and air conditioning:

- 1 — Find out if the dealer uses the manuals and guides of the National Warm Air Heating and Air Conditioning Association and the American Society of Heating and Air-Conditioning Engineers.
- 2 — Select a firm specializing in heating and air conditioning and not one that handles it only as a sideline.
- 3 — Select a dealer with a display room where you can see what you are buying. See that the firm offers 24-hour service and that it lists an emergency number in the phone book.
- 4 — Make certain that the dealer handles all of his own work and doesn't subcontract or use outside employees. See that they have their own sheet metal shop for custom fabricating of ducts and fittings.
- 5 — Ask to see work they have done for others.
- 6 — Don't judge by the firm's size or length of time in business. Make your decision on evidence of engineering, workmanship and service.
- 7 — Have a written contract and know what you are getting.
- 8 — Remember that the skills and experience of the installing dealer are more important for your comfort than the brand of equipment used.
- 9 — Don't fall for gimmicks, give-aways, gadgets or false allowances.
- 10 — Do not make payment before the system is operating to your satisfaction.



**SLOGANS**, such as that on wall over his desk, are one of John McManus' trademarks. They appear in likely spots throughout the building

- 11 — Make sure the dealer carries the proper insurance and obtains the necessary work permits.

#### Company Policy Is Explained

The letter then explains the company's policy as follows: "The primary purpose of McManus Heating and Refrigeration Company is to improve constantly the design, engineering, installation and operation of heating and air conditioning systems to the highest possible degree. In addition, we maintain a 'round-the-clock service department, ready and willing to aid you in your service problems and emergencies. It is the policy of the company to quote prices that are reasonable, based upon quality workmanship and materials. It is not nor ever will be our policy to sell inferior materials and labor." The letter then invites the prospect to ask for a complete explanation of the check list.

"Any person who pays extra for a furnace or an automobile or anything else purely for the sake of paying more is a fool, of course," Mr. McManus says. "But by the same token, it is a wise person who pays more for something that is worth more."

#### Strives to Show Difference

The McManus company is continually striving to utilize every new idea, every new selling tool that is available to show the public the difference between quality heating and poor heating and the reason for the difference in price. Mr. McManus declares, "It is my opinion that the basic fault responsible for most of our industry's problems is that too many dealers lack the courage to go out and show this difference."

But one more factor should be mentioned for its influence on the success and prosperity of this company. John McManus approaches his job with a dedicated enthusiasm which is conveyed to the entire organization.

These are the policies that have spelled success for this dealer and provided the foundation for his expansion into all types of cooling work and for a sound and profitable heating business as well.



## **COOLING DEALERS' HANDBOOK**

**How to Solve Engineering  
and Installation Problems  
in Residential Cooling**

# **How To Balance a Cooling Air Distribution System**

**Here are some recommended procedures for measuring, balancing and testing air flow in a typical duct system to assure maximum cooling efficiency from the equipment**

**By S. W. Reid**

**Air Conditioning Engineer  
Gilbert Associates, Inc.**

IN THE OCTOBER ARTICLE we discussed various practical approaches to duct system design. This month we follow through to balance the duct system properly after installation.

In the preceding article we learned that the equal friction method of duct design is the one most commonly used for systems with conventional velocities. The convenience in using this method generally outweighs whatever inaccuracies accrue in its use, since these may be corrected by means of damper adjustment in balancing the system.

There is a two-fold objective in balancing: 1) to make sure each part of the system is functioning correctly, and 2) to assure that the functions of the various parts are properly coordinated. Since the key to a well balanced system is proper flow of air, a means of air measurement is required.

### **Measure Air Flow Indirectly**

Because of the nature of air, a direct, quantitative flow measurement is not practical. It would be ridiculous, for example, to consider trying

to measure the amount of air that enters a container in a given time interval in the manner one might use to determine the amount of water flowing from a pipe. Indirect methods for measuring air are available, however, and we shall consider four of the most common ones in this article.

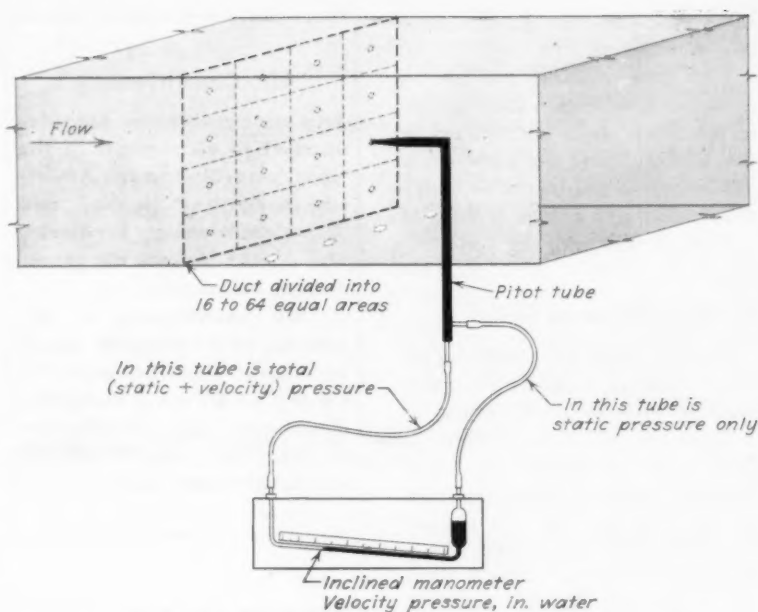
### Use Rating Tables

The first method might be called the calibrated equipment method. Suppose, for example, a serviceman wants to check the air quantity handled by a certain self-contained cooling unit. In his service manual he will probably find a blower rating table, established from factory test, showing blower speeds required to move certain air quantities (in cubic feet per minute) against corresponding external static resistance pressures. Having checked to see that the filters are clean, the serviceman obtains the blower speed with a tachometer and then, by means of an inclined manometer, obtains the difference in the static pressure between the point where air enters the unit and its leaving point. Applying the measured values to the table will determine the actual flow.

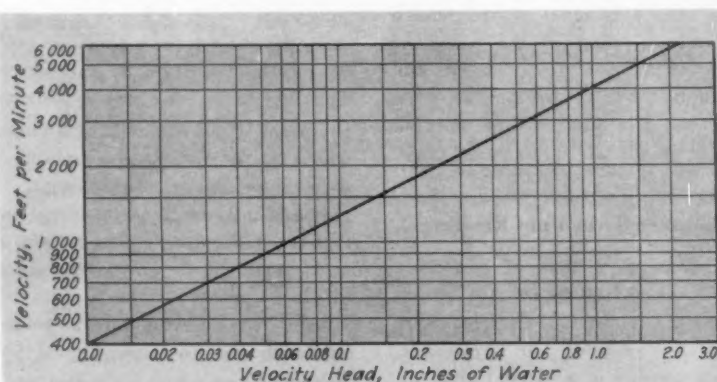
The calibrated equipment method can also be used for any system or duct run that contains a calibrated component such as a coil or filter. Pressure drop ratings of coils and clean filters are usually given in manufacturers' catalogs for various face velocities. Thus, if a serviceman can measure the pressure drop across these components, he can refer to the table or chart for the velocity. Then he can calculate cfm by multiplying velocity by the face area.

### Pitot Tube Is Accurate

Whereas the method described above depends upon having available the pressure drop data of certain system components and is, therefore, limited to duct runs containing these components, the Pitot tube method is independent of all equipment except that used for obtaining the necessary data. Under proper circum-



**1** PITOT TUBE READINGS, taken in centers of 16 to 64 equal areas of duct (centers should be no more than 6 in. apart), indicate velocity pressure which can be converted to velocity (see Fig. 2)



**2** VELOCITY CURVE IS PLOTTED from equation:  $V = 4006 \sqrt{H}$  (if  $H=1$ ,  $V=4006$ ), where  $V$  is velocity of air, fpm;  $H$  is velocity pressure, in. water; air is assumed standard with density 0.075 lb per cu ft, temperature 69.41 F, barometric pressure 29.92 in. Hg.

stances this method is the most accurate available for determining air flow.

The Pitot tube consists of a pair of small concentric tubes. The inner one forms an impact tube and the outer one is closed at the upstream end but has small openings through its wall. These openings are so located that static pressure in the air stream may be communicated accurately to the interior of the tube.

The Pitot tube is used as shown in Fig. 1. The inner tube registers total pressure. The outer tube registers static pressure. The difference between these two is the velocity pressure which, when read on an inclined manometer in inches of water, can be converted to velocity in accordance with the relationship  $V = 4006 \sqrt{H}$ , where  $V$  is velocity in feet per minute and  $H$  is velocity pressure in inches of water. This

equation can be represented in more convenient curve form (see Fig. 2).

Pitot tube readings will not be accurate unless certain rules are observed. These rules are outlined in the ASHAE Guide and other standard references and should be understood before any attempt is made to measure air flow with this device.

#### Use Anemometer at Grilles

The third method of measuring air flow involves a propeller type anemometer. This instrument consists of a frame in which is mounted a light, revolving, wind-driven wheel connected through a gear train to a set of recording dials that register linear feet. This device must, therefore, be operated for a timed interval to determine velocity which in turn is multiplied by area to determine cfm.

The propeller type anemometer is most useful for measuring air flow at grilles and registers. The core area is divided into equal squares, and a reading is taken in the center of each. Readings are averaged and multiplied by the average of gross and net free area of the opening to obtain the air quantity in cfm.

#### Velometer Gives Fpm Reading

The fourth method of measuring air flow involves the use of an instrument known as the deflecting vane anemometer or velometer, which consists of a pivoted vane enclosed in a case. The pressure exerted by the stream of air flowing through the case causes a proportional movement of the vane which is resisted by a hair spring and damping magnet. The reading is direct in fpm. Various calibrated attachments are included with the device. Its applications range from measurement of the motion of air in a room to measurement of static pressure and velocity in a duct.

In the preceding discussion of the most practical methods of measuring air flow, note that in no case can we obtain an air flow reading directly in cfm. In the calibrated equipment method we had to refer observed

### What Is 'Air Conditioning'?

**True air conditioning provides comfort in all seasons of the year, according to the American Society of Heating and Air - Conditioning Engineers. The ASHAE defines air conditioning as follows:**

**"Air conditioning is the process of treating air so as to control simultaneously its temperature, humidity, cleanliness and distribution to meet the requirements of the conditioned space."**

values of duct resistance and blower speed to a rating table to read cfm. Or we had to refer the observed pressure drop across a coil or filter to a pressure drop table to get velocity, then multiply velocity times area to get cfm.

In the Pitot tube method we read velocity pressure on a manometer. This had to be converted to velocity by means of an equation or a curve which, in turn, had to be multiplied by area to get cfm.

In the method using the propeller type anemometer, we had to use a watch to time the interval during which we measured the number of feet air traveled. This gave us velocity which had to be multiplied by area to get cfm.

In the vane type anemometer method, we read velocity directly and then had to multiply by area to get cfm.

#### Sketch System, List Data

Whatever method is to be used, a sketch should be made of the entire system and the cfm in each section of the system and at each outlet or intake noted on the sketch. Under each cfm notation, we list not only velocity but also the corresponding velocity pressure in inches of water. If this is done in advance, the serviceman will have a ready reference to check his field readings, and will

not have to convert each velocity or pressure reading to cfm to determine how close he is coming to the required values. The sketch should be accompanied by a chart showing desired readings and having space for the entry of successive field readings as adjustments are made to reach the goals.

#### Check Filters First

As mentioned, testing should not be started until filters are cleaned or replaced if necessary. This is especially important on jobs in new buildings. Construction dirt and dust can clog filters much quicker than normal use.

With filters clean, the fan is started and checked for direction of rotation and for speed. If the fan has forward curved blades and is an individual component (not supplied as part of a factory-built unit), its motor amperes should be checked to make sure it is not overloaded due to excessive speed.

With the fan operating, the entire system is examined, checking first all splitters and dampers in the ducts and then all supply and return registers. Dampers and registers are set full open, splitters are centered, and all openings are checked for air movement to make sure there are no restrictive sections in the duct which may be blocking the free passage of air to or from the fan.

#### Estimate Total Air Quantity

With the system operating wide open, and with the return air damper full open and the outside air damper full closed, an estimate is made of the total air being handled. Perhaps the most simple way to do this is to use the calibrated equipment method. Since the fan speed has already been recorded, all that is needed is a reading of the external static pressure and the catalog fan rating table applying to the equipment. If such information is not available, the Pitot tube or velometer must be used. In any case, if the total air quantity is too far out of line, the fan speed is adjusted.



Assuming now that the total air quantity has been set within acceptable limits, the next job is to set the outside and return air dampers to admit the desired amount of outside air. For this operation an anemometer is used. First the outside and return air dampers are set by estimation. Then anemometer readings of the air entering the return grilles and the outside air intake are taken and converted to cfm. Several trial adjustments may be required to get the correct proportion. Final damper settings are marked on the duct.

### Adjust Branch Splitters

At this point we locate from our sketch various splitter dampers controlling the flow of air into the branch ducts, if the system is large enough to have them. The amount of air carried by each, together with the velocity and velocity pressure, have been tabulated on the sketch. The next step is to use the Pitot tube or velometer to obtain actual values to check against the tabulated values on the sketch. Splitters are adjusted and successive readings are taken until the requirements of the job are met. All data taken should be systematically recorded so the results of changes can be identified quickly on the job.

### Divide Air Among Outlets

Once the branch air quantities have been adjusted in the proper proportion, the next job is further dividing the air among the outlets in each branch. This is done with the aid of a propeller type anemometer or velometer to read velocity. Corrections are made by closing valves and dampers as necessary. After each correction all outlets on a branch should be rechecked, as decreasing the air through some openings will tend to increase the flow through others. The process should be repeated until all readings are within 10 percent of those required by the design. Exact air quantities are not so important as is proper proportioning since a 10 percent change in flow has only a

2 percent change in total cooling capacity.

When all outlets have been set for the correct air flow, return registers are given the same study if regulation is necessary for a particular job. In this connection, special attention should be paid to return openings close to the blower or those where short circuiting of the supply air might be possible.

### Recheck During Occupancy

When all the air quantities are correctly established, our task is complete. But is it? True, we have balanced the air system to the point of design, yet actually, we have no as-

urance that the design air quantities will provide the comfort conditions required. To complete our task we make a final check when the conditioned space is occupied and when the equipment is operating on automatic temperature control.

During the final check the serviceman looks for two things: drafts and uneven temperatures. Trouble from drafts usually will not be serious if outlets have been carefully selected. Correction is made by changing the throw pattern through adjustment of outlet vanes.

### Remember Design Conditions

The temperature check should be made carefully — especially in a residence where the cooling load depends a great deal on the effect of direct sun radiation. Don't forget that the amount of air being sent to each room is proportioned on the basis of the load in that room at a particular time of day and during a particular season. If the room is checked when sun conditions are other than those assumed to establish the air requirement, we would not expect to find as high a temperature as might be found when the room is under full cooling load conditions.

### Study Rooms Individually

The correct approach to a temperature check in an exposed house is to study the rooms one at a time for evenness of temperature within each room. Temperature differences between rooms should not cause much concern unless they are so large that they cannot be justified by expected load fluctuations. If a problem develops as the result of a severely fluctuating load, temperature zoning may be the solution. If a large temperature difference between rooms is not the result of load fluctuation, the trouble may be in the load calculation or in the air balancing procedure, and both should of course be reviewed carefully for possible error.

#### THIS CONTINUING SERIES OF ARTICLES COVERS . . .

. . . all aspects of residential cooling, beginning in the August, 1952 Artisan with a complete rundown on:

#### FUNDAMENTALS . . .

. . . in a series of 20 articles which described the basic operating conditions of residential cooling equipment. Next, we turned to:

#### SPECIFIC PROBLEMS . . .

. . . of maintenance, service, installation and management, describing new techniques and presenting pointers on solving problems common to residential cooling. The current series describes:

#### CASE HISTORIES . . .

. . . and known problems which have actually been experienced and reported by dealers. Engineering, installing and servicing of cooling systems and their components are discussed by the author in answer to actual problems expressed by industry members.

[Data and curve presented in Fig. 2 on page 61 are taken from York Corp. Application Manual.]

# Code System Takes Guess Out



**THIS SERIES** of articles, under the general heading, " 'TRAINING PROGRAM' ... in Print," is designed to help dealers train their engineering, service, managerial and sales personnel in all phases of their operations. These articles are selected for their informative value and are presented as reference material for developing know-how among employees in situations which are likely to arise. Some of the previous articles in this series have discussed:

- electrical problems
- humidity control
- management techniques
- air distribution
- sales presentations
- school heating
- promotion ideas
- attic fans
- selling builders
- attention to details
- installation procedures
- fume removal
- job estimating
- outside air intakes
- classroom heating
- modernization ideas
- scrap salvage

Constant check on a well-organized, coded system pace with changes in wages, procedures and hidden underbidding or losing jobs unnecessarily to more

**BOOKKEEPING SYSTEM** utilizes the estimating code to determine if estimated job costs match actual costs involved. C. E. Brooks, company treasurer (right) reviews tabulated shop, job and material costs



ESTIMATING IS THE VERY HEART of any business. To maintain records of actual job performance, estimating procedures must be checked constantly against actual costs incurred, with adjustments being made in estimating methods when a trend toward an increase or decrease in costs is found. L. Ray Brooks, J. W. Brooks and Sons, Chattanooga, Tenn. has tied his estimating procedures in with his bookkeeping system by using a code system which facilitates recording the type of work performed, equipment used and time required.

## Common Faults Minimized

Some of the common faults of estimating procedures which have been minimized by the Brooks system are: 1) inaccurate data on weights of metal for air distribution systems; 2) varying labor rates; 3) complications in the duct system; and 4) dependence on guestimates for uncommon operations.

The estimating method used by the sales and engineering staff utilizes a material, equipment and labor index prepared for various operations; a multiplier based on previous operational studies; and a system of code numbers that ties each operation together on a Job Cost Summary sheet that is completed on each job.

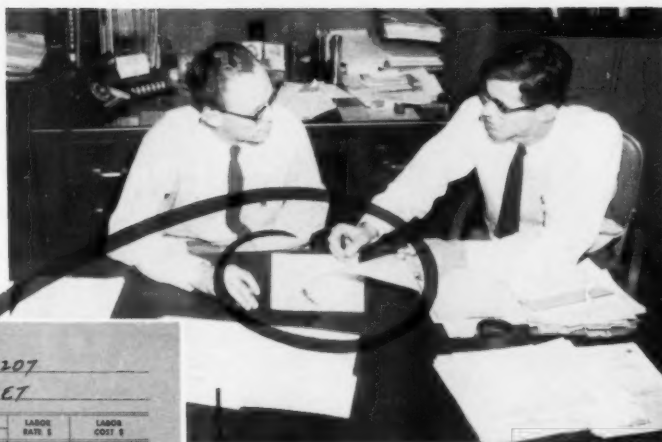
The Job Cost Summary form has three columns on the right side of the page, headed: 1) Estimated Costs, 2) Actual Costs, and 3) Variance in Costs. Down the left side of this sheet are listed most of the code numbers and the related headings they represent.

## Salesmen File All Data

An estimate sheet is completed for each bid, and the estimate and other information about a proposed job are filed together by the salesman, who also performs the basic engineering. When a proposal is accepted, the detail engineering is completed by

# of Estimating

for figuring job costs keeps factors without danger of realistic competitive bids



Date: 9/15/57  
Job: Smith, J.  
Form 25, Rev. 8-15-56

**SUMMARY  
JOB ESTIMATE**

Job No. 207  
Est. By: C.E.T.

DIVISION	MATERIAL COSTS \$	LABOR \$/Hr		LABOR RATE \$	LABOR COST \$
		SR	PP		
ALL EQUIPMENT	334				
S. M. LABOR ON EQUIPMENT		2		3.02	6
P. F. LABOR ON EQUIPMENT			70		
S. M. ACCESSORY MATERIALS	106.	43		3.02	132
S. M. INSULATION	10	3		3.02	9
Fabrication Ductwork	42	23		3.02	70
Erection Ductwork		18		3.02	55
P. F. ACCESSORY MATERIALS			71		
P. F. - INSULATION			74		
REFRIGERANT PIPING			72		
WATER, Etc., PIPING (oil piping)	25	8		3.25	25
Miscel. S. M. Labor		2		3.02	6
Miscel. P. F. Labor		4		3.25	13
<b>TOTALS</b>	<b>567</b>				<b>316</b>

SUMMARY OF COSTS		NOTES	
Equipment and Materials	\$ 567	airing (3hr @ 3.25)	10
Use Tax	3 % 17		32.6
Service Reserve	3 % 17		
Labor Costs	326		
Labor Insurance and Taxes	10 % 33		
Direct Labor Supervision	%		
Miscel. Expense			
<b>SUB-TOTAL</b>	<b>\$ 960</b>		
Mark-Up	40 % 384		
Sales Price, Less Sub.	1344		
Total Sub-Contracts Incl. M. U.			
<b>TOTAL SALES PRICE</b>	<b>\$</b>		

REVIEWING PROCEDURE for making job estimates are Ray Brooks, company president (left) and Arthur H. Jones, manager of the air conditioning department

1 SAMPLE SUMMARY JOB ESTIMATE shows how costs of material and labor are correlated with their applications to obtain total cost

the company's engineering staff. Following is an example of the procedure followed by J. W. Brooks and Sons when they prepare a bid.

The job estimate in this example was for an 84,000 Btuh output, oil-fired forced warm air furnace (with a 1000 gal oil tank) to be installed in an existing one-story, slab floor building. The furnace was to be installed in a utility room with the supply and return air ducts in the attic.

The material and labor required for this installation and listed separately on special estimating sheets designed by Ray Brooks are shown in Table 1 on page 66.

## Material Is Coded

The code numbers in Fig. 1 above (such as 50, 51, 60, etc.) refer to the master instructions issued to each member of the staff. The 50 series, for example, covers different

basic classifications of equipment and material, such as furnaces, burners, humidifiers, cooling units, compressors, cooling towers, pumps, motors, starters and automatic controls (including thermostats, valves, etc.)

The 60 series covers sheet metal labor classifications. Code numbers 61 and 62 include labor for shop fabrication of sheet metal items, and classification no. 63 represents erection time.



The 70 series covers pipe fitter labor classifications.

### Summary Sheet Is Check List

Costs of materials and labor as shown in the estimating sheet can now be checked against their use on the Summary Job Estimate (Fig. 1). Note that equipment costs of \$334 are charged to code 50. In the second line, the two hour time estimate to set up the furnace is charged to code 60 and projected at the current wage rate to find total labor cost for that operation. Similar costs listed on the original estimating form are entered on the Summary Job Estimate

TABLE 1—ESTIMATING SHEETS, designed especially for the company, show total equipment and labor for each job

Major Equipment Sheet				
Quantity	Item	Cost Account		
		Equipment	Labor	
1	84,000 Btuh forced warm air furnace	\$205		
	Freight (280 lb)	12		
	Set furnace		2 hr SM	
1	Oil tank (100 gal)	117		
		\$334	2 hr SM	
Accessory Equipment Sheet				
10	Supply registers	100	30 hr SM	
2	Return grilles	20	4 hr SM	
2	Canvas connections	4	2 hr SM	
30	Ft of duct beyond initial 10 ft	12	5 hr SM	
1	Vent (chimney)	20	2 hr SM	
		156	43	
Sheet Metal Shop and Erection Time				
350	Lb sheet metal		23 hr SM fabricating	
			18 hr SM erecting	
40	Ft duct insulation	10	3 hr SM	
	Oil piping	25	8 hr PF	

sheet and extended to obtain the total of equipment and labor costs. In this case, the wiring was to be subcontracted on an hourly basis. This cost is added to the \$316 labor figure to bring the total labor costs to \$360. The total material cost is \$567.

These figures are entered into the

Summary of Costs box in the lower left hand corner of the sheet. Additional charges that enter into the cost of making the installation, such as sales tax, service reserve, labor insurance, salesman's commission, overhead and profit, are added according to the company's formula to bring the total selling price to \$1344.

When the job has been sold and installed, the information on the job sheets used in the shop and at the site is compiled and tabulated by the bookkeeping department. The actual costs involved are recorded and the difference between estimated costs and actual costs is noted to check the accuracy of the procedure.

### Time Card Sets Standards

One of the key records of the time required for shop fabrication and on-the-job erection is the Time Slip (Fig. 2) which shows the name of the job, job number and location, date and name of workman. Fig. 2 also shows the code number and type of work performed by the workman who enters the hours of regular time and overtime (if any) he spends on the particular job. This time sheet must be initiated by the shop or job



FLOW OF WORK through shop is planned to permit accurate records of the time required to lay out and fabricate duct sections and fittings. Each worker turns in a record of time spent on each fitting



TIME SLIPS ARE CHECKED for actual time required to fabricate a section of duct work against the estimated time. Going over time slips are L. R. Prestwood, shop superintendent (left), and Arthur H. Jones

foreman before he turns it in to the bookkeeping department for posting.

The information obtained from the time cards is used to adjust the multiplier used by the estimator to determine the amount of time required to fabricate and erect the sheet metal and piping work.

### Tabulate Sheet Metal Time

To determine the time required for fabricating and erecting sheet metal work, another form is used by the estimator. This form lists all the various sizes of ducts required, their respective lengths, number and shape of fittings required. This information is then checked against a master time sheet which shows the amount of time required to fabricate each section and fitting required. This form also gives the total weight of the sheet metal involved (based on gage). In the case of the sample estimate above, the company found that it would require nine hours to fabricate the duct sections and ten hours for the fittings required. The master time sheet also showed that it would require 12 hours to erect the duct



2 TIME CARD breaks down employees' work, serves as check sheet to adjust estimating multiplier

TIME SLIP					
J. W. BROOKS & SONS					
JOB NO. 3088		DEPT. 3		DATE 9/26/57	
NAME OF JOB City Food Terminal		LOCATION		REMARKS	
WORKMAN R. R. Williams					
NO.	TYPE OF WORK	ACTUAL HOURS WORKED			
		SHOP OR FABR.	ERECT.	TRAVEL	TOTAL
80	INSTALLING EQUIPMENT ONLY				
81	FABR. ONLY EQUIP. BASES, HANGARS				
82	INSTALLING DUCTS				
83	ERECTING DUCTS				
84	INSULATION				
85	CUTTING, FITTING				
86	TRAVEL TIME				
TOTALS		9	3		12
TOTALS		9	3		12

FOR OFFICE USE ONLY			
CLASS	HOURS	RATE	AMOUNT
PARKING			
TOTAL	8	3.75	30.00
TOTAL	8	3.75	30.00
TOTAL	8	3.75	30.00
TOTAL	8	3.75	30.00

work and that the total weight of duct work would amount to 325 lb.

### Hidden Operations Included

The 19 hours for fabricating is multiplied by the factor 1.2 to obtain a total of 23 hours to fabricate all duct sections. This multiplier (or factor) takes into consideration all the hidden operations that consume a worker's time every day but are difficult to charge to any specific operation. The 12 hours erection time is multiplied by the factor 1.5 which brings the time required for erection to 18 hours. The factor 1.5 allows for the phases of work involved in erection which again are hard to account for. Time for work such as loading and unloading duct sections and travel time between shop and job are included in this factor.

The multipliers used are samples of those actually employed, but each type of job is classified and a multiplier that has been found to represent actual time consumed is used. These multipliers are the balance between estimated and actual costs.

The original estimate of 350 lb of sheet metal included 325 lb for duct work and 25 lb for drive cleats.

The most important function of the estimating procedure is listing every piece of equipment needed for the job and showing the total hours required to fabricate and install. Such a method of estimating has two major advantages, according to Ray Brooks. He says, "First, we feel assured that if we get the job, we stand to make a profit. Second, we are sure that prices very much lower than ours cannot obtain the first-class installation we propose and we are in a position to tell the prospect why he cannot get the degree of quality or comfort he expects from any lower priced job. This sales point often converts a prospect into a customer for us."

The company is managed by L. Ray Brooks, president, and his brother, J. W. Brooks, Jr., vice president. Arthur H. Jones, chief engineer, heads the air conditioning department and L. Roy Prestwood is superintendent of the sheet metal shop. Besides being president of the company, Ray Brooks is active in local and national association work. In 1956 he was elected to a four year term as director of the Sheet Metal and Air Conditioning Contractors' National Association.

### WHAT'S YOUR PROBLEM?

The American Artisan's 'TRAINING PROGRAM' — IN PRINT will explain the whys and wherefores of some of the dealer's problems, tell what to do about them. You will want the members of your organization to study these articles carefully, keep them for future reference . . . If you have a problem you'd like to see covered, write Clyde M. Barnes, Editor, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.



AT A DIRECTOR'S MEETING the board of the Pittsburgh association examines a Better Business Bureau pamphlet on air conditioning. Literature such as this may be used in the association's public education campaign. Shown are Ned Hornberger, William Boehmer, John L. McManus, Frank Lemmon, Ed Hickey, Frank Heckler

# Does Your City Have A Dealer Organization?

PERHAPS YOU ARE a heating-cooling dealer in a community that does not have a local association working for the common good of your business and the public. Suppose that you feel such an association is greatly needed to raise standards of practice and to give the public a better understanding of heating and cooling. What do you do?

This was the story until recently in Pittsburgh. A number of dealers realized that they were faced with just such a situation, and they made up their minds to do something about it. Now a little over a year has passed. It's still too early to judge the results, but a sound organization has been built. And members are hard at work to accomplish their chosen objectives.

Of course, it is not very difficult for a group of dealers to get together and with the aid of an attorney set up an association with a constitution and by-laws and a charter from the state. However, it is another matter to build this organization once it is formed into an effective and vigorous tool which will have real impact upon the community in which it exists.

## Founders Were Aware of Problems

The founders of the Pittsburgh association were well aware of the problems. But they felt they could be solved, that there was a genuine need for the organization and that the need was not being met.

This need was pointed up by the activities of several installing organizations in the area which had engaged in questionable sales tactics and in making inferior installations. Behind this problem was the basic one which every dealer faces when he tries to make a sale — public ignorance of the barest outline of what makes a good heating or cooling system.

Before the association was set up, there was another question which needed an answer. Pittsburgh had long

had an active commercial and industrial sheet metal contractors association. Why not use this organization as a means to the end which the dealers sought? The Pittsburgh dealers did not follow this course because they felt that their problems called for a new organization. The sheet metal contractors group was serving a separate purpose, and the dealers could see no particular reason why the sheet metal organization should strike out in this new direction since many of the members did no heating-cooling work.

And so the association was formed. D. E. Hickey, veteran dealer, was elected president. F. W. Heckler was named vice president, N. E. Hornberger, secretary, and J. L. McManus, treasurer. In addition to the officers the board of directors included W. C. Boehmer, F. E. Lemmon, and J. B. Peacock.

## Built Financial Foundation First

One guiding principle was decided upon early in the formation. The officers agreed that the growth of the association should be regulated, members should be carefully selected, plans should be thoroughly developed, and an executive secretary should be hired to assure follow-through on all programs. They also decided that to assure a solid financial foundation, the treasury should include sufficient funds to operate the association for one year before any programs were launched.

The first step naturally was to gain support for the organization's objectives. Dues were set at \$50 per year and a \$50 membership fee was established. Members were to be solicited from Pittsburgh and nearby communities in Allegheny county.

Monthly meetings were scheduled with speakers which would be of interest to members and prospective members. Among early speakers were a home builder, a banker and a man from the Better Business Bureau.

## Association's Objectives Listed

Letters were mailed to all prospective members inviting them to attend the meetings and outlining the objectives of the new association.

**If not, you'll want to read how dealers in Pittsburgh formed a new association to help advance the common interests of heating-cooling dealers and the public**



**GROWTH OF AN ASSOCIATION** should be regulated and preferably an executive secretary should be hired to put plans into action, says President Hickey

The first of these letters listed the objectives as follows:

- 1) To encourage a spirit of cooperation and friendliness among its members; to favorably impress the public and to promote public acceptance of the warm air heating and air conditioning industry.
- 2) To facilitate the acquisition and interchange of practical and educational data among its members.
- 3) To cooperate in the passage of just and reasonable ordinances affecting the installation and maintenance of warm air heating and air conditioning equipment.
- 4) To cooperate to expose and suppress business methods detrimental to the industry.
- 5) To exercise influence on manufacturers for quality products and on the methods of selling and installing those products.
- 6) To secure cooperation with related industries in promoting the use of warm air heating and air conditioning equipment.
- 7) To serve as an organization for the protection of its members.

By the spring of this year some 20 members had joined the association. Several applicants had been turned down for membership because of complaints registered against them with the Better Business Bureau.

At the same time that the membership and financial strength of the association was growing, the officers and board of directors were planning a program of action and making further refinements in the group's objectives.

### **Objectives Spelled Out in Detail**

These objectives were then spelled out in even greater detail than in the initial announcement, as follows:

- 1) Endeavor to raise the dignity of the heating and air conditioning business.
- 2) Educate the public so that they can discern between quality installations and inferior installations.
- 3) Establish systematic methods of making available to members all new ideas as they are developed by the industry.
- 4) Endeavor to have a heating and air conditioning

code in the city of Pittsburgh and Allegheny county placed into effect which will protect the public from the viewpoint of safety as well as performance.

5) Caution the public against bait type advertising and point out its evils. (The association will make itself available to evaluate and explain bait advertising.)

6) Educate the builder as well as the public with regard to the many types of comfort improvements that are available today and which are not being used in a large majority of the systems installed. (This refers to such items as perimeter heating, zone control, electrostatic air cleaning, continuous air circulation, and similar items.)

7) Formation of a speakers committee by the association to speak at service clubs and other public meetings to carry the message to home owners.

8) Offer a free analysis of "sick" systems.

9) Encourage more policing power by the city of Pittsburgh and Allegheny county with regard to heating systems that are installed without a permit.

With these objectives clearly in mind and with a growing membership to support them the association took the next step toward putting the program into action. An attorney, Edward G. David, was hired as a part time executive secretary. The advantages of having an executive secretary were obvious. He could establish and maintain a permanent office for handling association affairs. He could take some of the burden of association business off the shoulders of the officers. He could give the program continuity as the officers changed from year to year. Furthermore, his position as an attorney would be helpful in revising codes.

### **Speakers Committee Goes Into Action**

With the foundation firmly laid, the association is now ready to move forward toward its goals. This fall the speakers committee went into action. Speakers are made available to service organizations, Rotary, Kiwanis, Lions, women's clubs and others, without charge. The

subject matter is quality heating and air conditioning. The purpose is a grass-roots educational campaign. Speakers agree not to accept any prospects resulting directly from a speaking engagement.

In addition, work is moving forward on the development of a satisfactory code. An insignia is being designed which can be leased to members so that they can identify themselves with the association's program. By leasing the insignia, the association retains the right to restrict its use. A cooperative advertising campaign is in the planning stage to be financed by assessment charged to each member.

And so, the Pittsburgh association is well underway. It hasn't been easy. It's required a lot of work. As one member said, "It's a tough thing to organize an association like this and run your own business at the same time. It is necessary to have a few sparkplugs, who can

lead others into action. But we expect the rewards to be well worth the effort."

The job to be done was clearly indicated by the home builder who spoke at an association meeting. He said that heating and air conditioning was a subject that was seldom even discussed among builders. He pointed out that there simply is no public demand for quality heating as far as the builder is concerned. Until such public demand exists, he explained, the builder will continue to have little concern with heating comfort or air conditioning.

The creation of public demand is one of the biggest jobs that the Pittsburgh group has ahead of it. It's a job being faced by local, state and national associations all over the country. And in many communities without a local heating-cooling dealers association, it's a job that may be left undone.

## Details of AMCA Testing Program Are Revealed

FURTHER DETAILS of its recently announced Certified Rating Program have been revealed by the Air Moving and Conditioning Association. The program is designed to provide a reliable means of judging the expected performance of air moving equipment.

To implement this program, AMCA first determined on a test code. The code originally developed in 1923 by the old National Association of Fan Manufacturers (now merged into AMCA) was adopted with practically no changes. This code has been widely used in the industry.

The next step was to develop a definition of an AMCA "Certified Rating." Such a rating covers volume, total pressures, static pressure, speed, power input, mechanical and static efficiency, at a stated density. To identify products which have been tested and rated in accordance with the uniform testing requirements, the Association is adopting a seal to symbolize the AMCA Certified Rating. Display of the seal will mean that the manufacturer has qualified his product within the terms of a license agreement. The rating is not a guarantee by AMCA, nor does it carry any implications as to mechanical design, operation or quality.

To qualify a product the following conditions must be met:

- 1) Product must be tested in accordance with the AMCA Standard Test Code in a laboratory approved by AMCA.
- 2) The manufacturer's published performance ratings must be the result of such tests and/or proper calculations based on the tests as permitted under the Standard Test Code.
- 3) For each product to be qualified for Certified Rating, the manufacturer must provide the following information: a) description of product, b) list of sizes offered to the public, c) sizes and types actually tested, d) supporting test data for sizes and types tested, and performance ratings for spot checking.

4) The manufacturer agrees to maintain quality control of the product so that fans will deliver the rated volume and pressure, at the rated density, with speeds within  $2\frac{1}{2}$  percent of the rated speed, and the shaft horsepower not in excess of the rated shaft horsepower by more than 5 percent.

The right to use the seal may be withdrawn for violation or failure to perform any provision of the license agreement. At present, centrifugal, axial and propeller fans, and power roof ventilators may qualify for certification. Other types of air moving devices are expected to be included in this program shortly.

To qualify a test laboratory (either the manufacturer's laboratory or a neutral test laboratory) tests must be conducted under the observation of an AMCA witness. This observer evaluates and reports to the Association on the conformance of the tests with the AMCA standard test code and the competency of laboratory test personnel.

The report includes: 1) a sketch of test set-up and room, 2) description of each piece of test measuring equipment, 3) description of methods used to calibrate test instruments, 4) log sheets with traverse readings for units tested with computations made by laboratory personnel, 5) summary log sheet, 6) performance curve at constant speed, 7) comments on conduct of the test, i.e., speed variations, precautions to prevent air stratification, etc.

Following approval the qualified laboratory is subject to periodic inspection by AMCA.

AMCA was formed in 1956 by the merger of three organizations: National Association of Fan Manufacturers, Power Fan Manufacturers Association, and Industrial Unit Heater Association. It represents 58 competitive manufacturers of ventilating, heating and cooling devices in the United States and Canada. For further information, write AMCA, 2159 Guardian Bldg., Detroit 26.

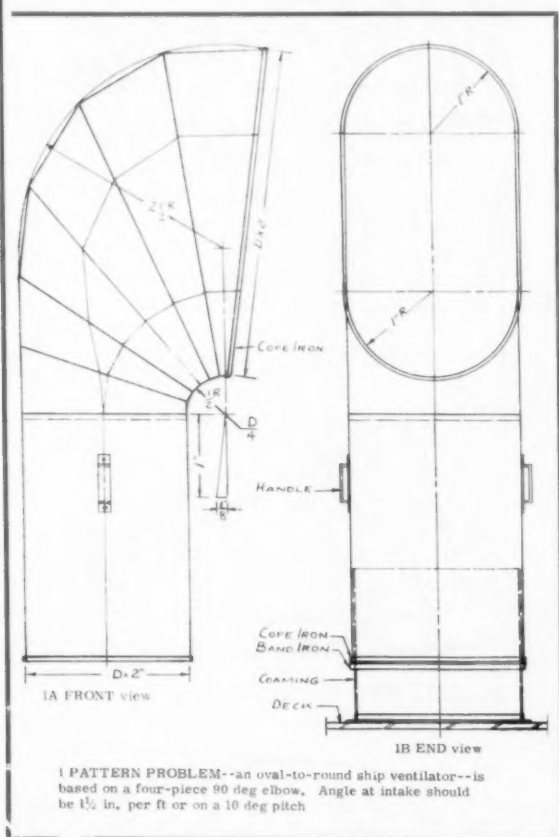


# HUGH REID'S SHEET METAL PATTERN

## *Use Simplified Method to Develop a*

### Four Piece Oval-to-Round Tapered Elbow

... such as the 90 deg fitting required for a ship ventilator, with the intake opening twice the pipe diameter and throat radius one-fourth the pipe diameter



THE PRACTICAL APPLICATION for this pattern problem is an oval to round ship ventilator. It was requested by an American Artisan reader in Ohio.

For the sake of appearance and efficiency, the standard practice of making the intake opening of the ventilator twice the given diameter of the pipe and the throat radius one quarter the pipe diameter is generally adhered to throughout the shipbuilding industry. The angle at the intake end is given either as  $1\frac{1}{2}$  in. to the foot or as a 10 deg pitch.

In Figs. 2A and 2B on the pattern problem page is shown a four-piece 90 deg elbow. In this type of problem each section of the elbow is different; therefore, it will be necessary to lay out separate patterns for each.

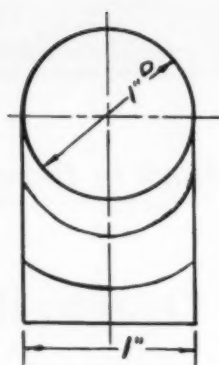
Given the front and the end views of an oval to round four piece 90 deg elbow, the following is a step-by-step analysis of the pattern problem solution.

Note that the end view is not required in the simplified pattern problem solution. It is drawn for clarity in shape and to give the required dimensions. To conserve space, the pattern for section 2 is omitted. The layout will be identical to sections 3 and 4 which are given.

#### To Construct the Front View, Fig. 2A—

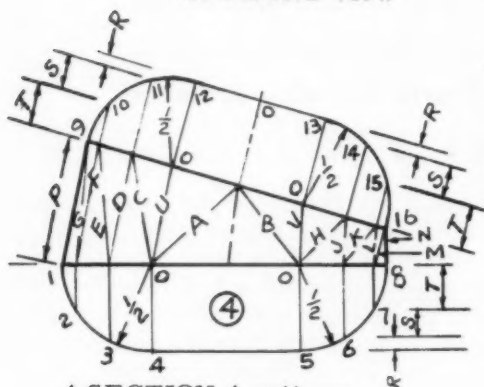
a) Draw the 2 in. horizontal line AB. Extend the line to the right of B, measure the given  $\frac{3}{4}$  in. radius and mark the point R. From point R, draw a line perpendicular to line RA. With R as center and the given  $\frac{3}{4}$  in. radius draw a 90 deg arc and mark the intersection point on the perpendicular line as K. From K measure up 1 in. and mark the point F. Set a compass at line length RF and with point A as center, draw an arc on line RA and mark the point O. With O as center and radius OA draw a 90 deg arc. From point F, draw a line tangent to the arc.

b) Divide the  $\frac{3}{4}$  in. radius 90 deg arc (from point R) into 6 equal spaces and mark the points B, G, 1, H, 2, J

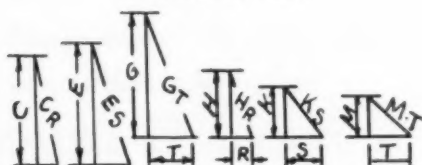


2A FRONT view

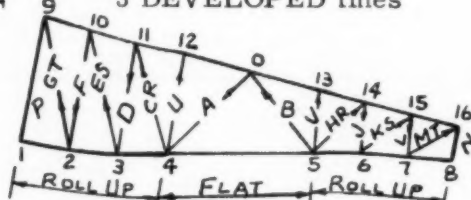
2B END view



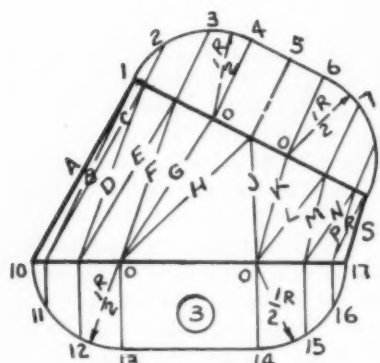
#### 4 SECTION 4 pattern



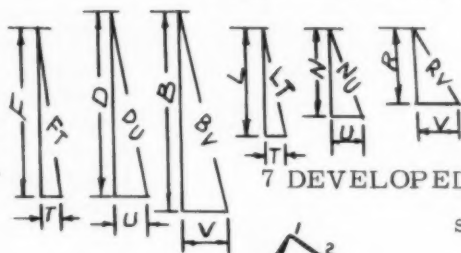
### 3 DEVELOPED lines



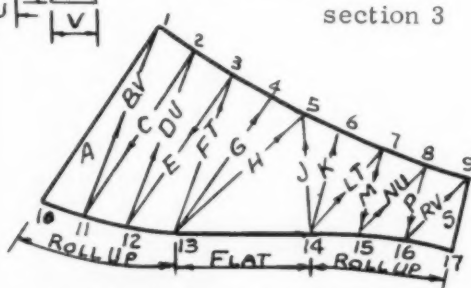
5 SECTION 4, half pattern



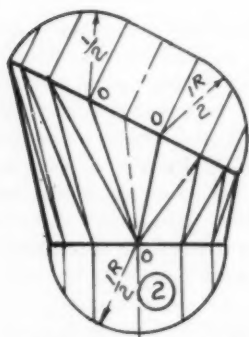
6 SECTION 3 pattern



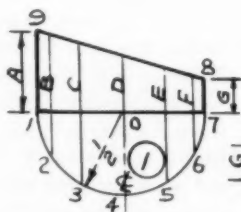
7 DEVELOPED LINES,  
section 3



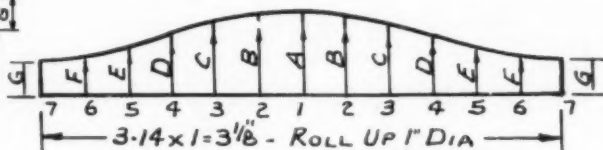
8 SECTION 3, half pattern



9 SECTION 2 pattern



10 SECTION 1



11 FULL PATTERN, section 1

and K as shown. Draw lines from point R through points G, H and J to intersect the  $1\frac{3}{4}$  in. radius arc formed with point O as center. Mark the points C, D and E. From points A, C, D and E on lines CR, DR, ER and AR, measure down  $\frac{1}{2}$  in. and draw lines between the end points on lines ER, DR, CR and AR. From points B, G, H and J measure up  $\frac{1}{2}$  in. on lines ER, DR, CR and AR, and draw lines between the new points located on these lines. Number the four trapezium figures in this manner: trapezium formed by points E, F, K and J, label section 1; trapezium D, E, J and H, label section 2; trapezium C, D, H and G, label section 3; and trapezium A, C, G and B, label section 4.

#### To Lay Out Pattern for Section 4, Fig. 4 —

a) Transfer the dimensions of section 4 from Fig. 2A to form a new trapezium to be labeled Fig. 4. Identify the corners of the trapezium with figures 1, 9, 16, and 8 as shown. Mark each of the  $\frac{1}{2}$  in. points as O. With each point O as a center and radius  $\frac{1}{2}$  in. draw 90 deg arcs below line 1-8 and above line 9-16. Draw lines connecting the arcs. Divide the quarter arcs into 3 equal spaces. Number the points on the bottom oval 1, 2, 3, 4, 5, 6, 7 and 8. Number the points on the top oval 9, 10, 11, 12, 13, 14, 15 and 16. Midway between points 12 and 13, locate point O. Through the points draw lines perpendicular to and intersecting lines 1-8 and 9-16. From the intersection points draw the work lines P, G, F, E, D, C, U, A, B, V, H, J, K, L, M and N.

b) Mark the vertical difference in the lengths of lines 11 and 12 with the letter R. Mark the difference in the lengths of the lines drawn from points 10 and 11 on the quarter circle with the letter S, and mark the length of the line from point 10 to line 9-16 with the letter T.

#### Half Pattern for Section 4, Fig. 5 —

a) Draw a horizontal line equal in length to line 4-5 on the oval Fig. 4 and mark the points 4-5. With line length A (Fig. 4) as radius and point 4 (Fig. 5) as center, draw an arc above and to the right of point 4. Set a compass at line length B (Fig. 4) and with point 5 (Fig. 5) as center, cut the arc A and mark the point O.

b) With line U (Fig. 4) as radius and point 4 (Fig. 5) as center, draw an arc to the left of point O. With length 0-12 (Fig. 4) as radius and point O (Fig. 5) as center, cut the arc U and mark the point 12. With line length V (Fig. 4) as radius and point 5 (Fig. 5) as center, draw an arc to the right of point O. With length 0-13 (Fig. 4) as radius and point O (Fig. 5) as center, cut the arc V and mark the point 13.

c) Transfer line C and fall distance R from Fig. 4 to the vertical and horizontal legs of a right angle. The hypotenuse line CR is the developed line. With point 4 (Fig. 5) as center and radius CR draw an arc to the left of point 12. With equal space 12-11 on the oval (Fig. 4) as radius and point 12 (Fig. 5) as center, cut the arc CR and mark the point 11. With line D (Fig. 4) as ra-

dius and point 11 (Fig. 5) as center, draw an arc to the left of point 4. With equal space 4-3 (Fig. 4) as radius and point 4 (Fig. 5) as center, cut the arc D and mark the point 3.

d) From Fig. 4 transfer line E and fall distance S to the vertical and horizontal legs of a right angle. The hypotenuse ES is the developed line. With point 3 (Fig. 5) as center and radius ES draw an arc to the left of point 11. With equal space 11-10 (Fig. 4) as radius and point 11 (Fig. 5) as center, cut the arc ES and mark the point 10. With line length F (Fig. 4) as radius and point 10 (Fig. 5) as center, draw an arc to the left of point 3. With equal space 3-2 (Fig. 4) as radius and point 3 (Fig. 5) as center, cut the arc F and mark the point 2.

e) Line G and fall distance T are transferred from Fig. 4 to the vertical and horizontal legs of a right angle. The hypotenuse GT is the developed line. With point 2 (Fig. 5) as center and radius GT, draw an arc to the left of point 10. With equal space 10-9 on the quarter circle (Fig. 4) as radius and point 10 (Fig. 5) as center, cut the arc GT and mark the point 9. With line P (Fig. 4) as radius and point 9 (Fig. 5) as center, draw an arc to the left of point 2. With equal space 2-1 (Fig. 4) as radius and point 2 (Fig. 5) as center, cut the arc P and mark the point 1.

f) Transfer line H and fall distance R from Fig. 4 to the vertical and horizontal legs of a right angle. The hypotenuse HR is the developed line. With point 5 (Fig. 5) as center and radius HR, draw an arc to the right of point 13. With equal space 13-14 on the quarter circle (Fig. 4) as radius and point 13 (Fig. 5) as center, cut the arc HR and mark the point 14. With line J (Fig. 4) as radius and point 14 (Fig. 5) as center, draw an arc to the right of point 5. With equal space 5-6 (Fig. 4) as radius and point 5 (Fig. 5) as center, cut the arc J and mark the point 6.

g) Transfer line K and fall distance S from Fig. 4 to the vertical and horizontal legs of a right angle. The hypotenuse KS is the developed line. With point 6 (Fig. 5) as center and radius KS, draw an arc to the right of point 14. With equal space 14-15 (Fig. 4) as radius and point 14 (Fig. 4) as center, cut the arc KS and mark the point 15. Set a compass at line length L (Fig. 4) and with point 15 (Fig. 5) as center, draw an arc to the right of point 6. With equal space 6-7 (Fig. 4) as radius and point 6 (Fig. 5) as center, cut the arc L and mark the point 7.

h) Line M and fall distance T are transferred from Fig. 4 to the vertical and horizontal legs of a right angle. The hypotenuse MT is the developed line. With point 7 (Fig. 5) as center and radius MT draw an arc to the right of point 15. With equal space 15-16 (Fig. 4) as radius and point 15 (Fig. 5) as center, cut the arc MT and mark the point 16. Set a compass at line length N and with point 16 (Fig. 5) as center, draw an arc to the right of point 7. With equal space 7-8 (Fig. 4) as radius and point 7 (Fig. 5) as center, cut the arc N and mark the point 8. Through the points draw the pattern.

Note: The step-by-step procedure for the pattern layout of section 4 will apply also to sections 2 and 3.

#### Drawing for Section 1, Fig. 10 —

a) Transfer section 1 from Fig. 2A to Fig. 10 and mark the points 1, 7, 8 and 9. From point 1 measure  $\frac{1}{2}$  in. to the right and mark the point O. With O as center and radius  $\frac{1}{2}$  in., draw a half circle. Divide the half circle into 6 equal spaces and through the points draw lines perpendicular to line 1-7 and intersecting line 8-9. Mark the lines A, B, C, D, E, F and G.

#### Pattern for Section 1, Fig. 11 —

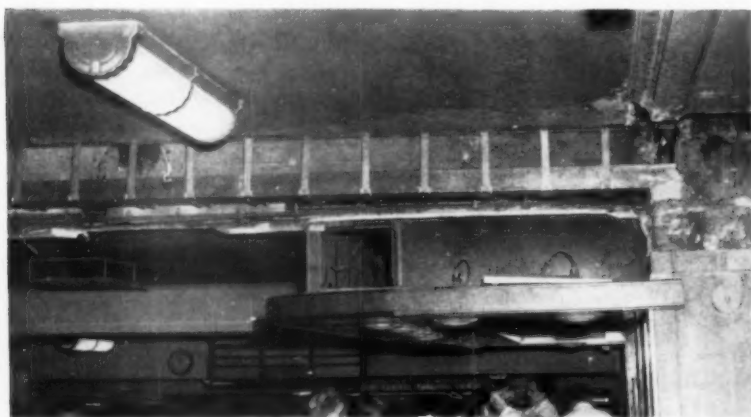
a) Calculate the circumference by multiplying the

given 1 in. diameter by the constant 3.14 which equals  $3\frac{1}{8}$  in.

b) Draw a  $3\frac{1}{8}$  in. horizontal line and divide the line into 12 equal spaces. Number the points on each side of center to correspond with the numbers on the half circle, and through the points draw lines perpendicular to the horizontal line.

c) Transfer line A from Fig. 10 to the line drawn from point 1, Fig. 11. Transfer line B from Fig. 10 to the lines drawn from point 2 on Fig. 11. Transfer lines C, D, E, F and G, from Fig. 10 to the corresponding lines on Fig. 11 and through the developed points draw the pattern outline.

Mark the pattern for fabrication and indicate the number of each required.



## Lead Gutter Stops Leakage In Underground Terminal

**First cost became secondary and lead gutter was specified when salt infiltrating through street-level expansion joints deteriorated existing gutters**

YOU DON'T SEE VERY MANY all-lead gutters any more. The cost factor frequently makes their specification impractical in competitive bidding. However, there are times when first costs are not the sole factor to consider when a serious drainage problem is encountered. Such a problem was met at the Randolph Street station of the Illinois Central Railroad Co. in Chicago. This station is be-

neath the level of the street that spans the switching yard and suburban passenger train tracks.

Due to exposure of the street to climatic changes,  $4\frac{1}{2}$  in. expansion joints are installed every 200 ft. Where these joints are located over the passenger station, drainage must be provided to carry off rain water.

It is the custom in Chicago to place snow-melting salt on busy

streets whenever any ice begins to form. When salt is spread on the street above the station, some of it works down the expansion joint and finds its way into the drainage system. When the Randolph Street station was remodeled 18 years ago, copper gutters were installed. Constant exposure to salt and other contaminants that fall from vehicles crossing the viaduct finally deteriorated the copper ducts and the ceiling of the station became badly soiled.

#### Sheet Lead Specified

The repair specifications called for  $\frac{1}{8}$  in. sheet lead. The gutter is 28 ft long and must be supported at close intervals to prevent sagging at the supports. The support straps are  $1\frac{1}{4}$  in. wide and in two pieces, one vertical hanger fastened to the ceiling and a horizontal strap secured to the underside of a concrete beam. Hangers are spaced at 9 in. intervals.

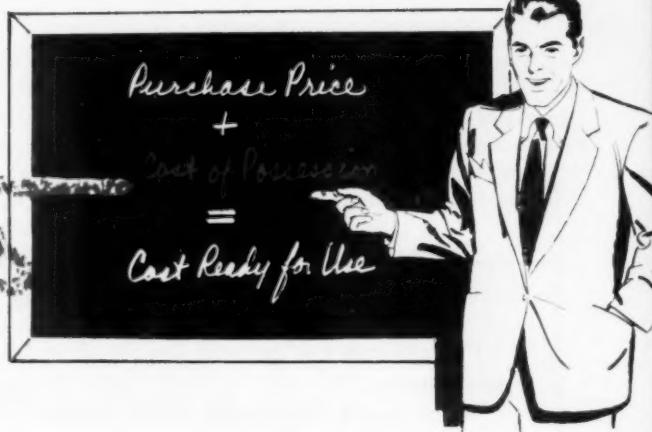
#### Gutter Is Encased in Soffit

The gutter itself is  $7\frac{1}{4}$  in. wide with a braked edge at the front and rear for rigidity. The gutter slants to a downspout that conveys the water to the railroad yard below. Because the gutter is encased in a plastered soffit, all joints had to be soldered and given a 48 hour flood test before the plastering began.

The installation was made by the Steel City Ventilating and Sheet Metal Co., Chicago.



# Is Sheet Metal Inventory Worth The Hidden Costs?



**Here's a thought that should be profitable for contractors who have potential operating money tied up in the expense of maintaining a large stock of sheet metal**

TO TAKE ADVANTAGE of volume discounts and to avoid running short at a crucial time, many contractors try to predict their future needs and lay in heavy inventories of sheet metal accordingly. On the surface, this would seem to be a wise move, and undoubtedly is, if the nature of the business is such that a large stock may be completely cleaned out on short notice by a large job.

But from the standpoint of saving money, it may be a very costly "economy" measure, advises Robert G. Welch, executive secretary, American Steel Warehouse Association, Inc., who warned members of the Wisconsin sheet metal contractors association that the "cost of possession" has a definite effect on their overhead costs. The following comments are excerpts from his address.

## Formula Shows Effect

There is a wide difference between purchase price and cost ready for use. That difference is cost of possession—the cost of carrying your sheet metal inventory, of processing it to size "ready for use." This economic fact may be simply stated in a formula, "purchase price plus cost of possession equals cost ready to use."

It would require an elaborate ac-

counting system to determine the exact "cost of possession" down to the last dollar. However, the costs which make it up can be determined—even in those instances where they are estimated—with sufficient accuracy to point up the savings that can be made by improving purchasing practices.

## Eight Factors Add to Cost

Cost of possession is made up of eight principal factors which should be added to the purchase price. These are: 1) cost of capital invested in inventories; 2) cost of scrap and wastage; 3) cost of obsolescence; 4) cost of labor for handling; 5) cost of insurance, taxes and accounting; 6) cost of space for storage; 7) charges on capital invested in storage handling and cutting equipment; and 8) cost of price reduction. These eight factors are analyzed on the following page to help contractors evaluate their hidden costs of possession.

## Costs Are Hidden

Most accounting systems don't bring many of these factors to the attention of the contractor, consequently these factors can justifiably be called hidden costs of inventory

ownership. For this reason and because many contractors devote most of their attention to production and marketing of the finished product, the actual expense of carrying sheets in stock is frequently overlooked. Purchasing policy often is established, giving consideration only to first price, rather than using a cost-ready-for-use method.

## Distributor Can Help

The metal distributor can help. If sheets are drawn from warehouse stocks as they are needed, money is not tied up in inventory, but goes right to work along with the material. Metal warehouses do more than simply store steel, aluminum, copper and brass and sell it "off the shelf." They maintain extensive equipment for cutting material to the exact size required by the individual buyer for special purpose orders. This equipment operates close to full time, because the distributor serves the needs of a great many customers, making a saving over cost at the shop level. When material is ordered from a warehouse cut to exact size, the problem of scrap and wastage can be reduced significantly as compared with what it would be for most users if they purchase quantities of standard sizes and attempt to adapt them to their needs.

## Warehouse Geared for Speed

Handling labor costs can be sizably reduced where the inventory is carried by the warehouse and purchases made as needed. The distrib-

utor is geared to provide prompt delivery. Often he can place sheets where they are needed in less time than it takes to withdraw them from your own storage space.

Where large quantities of sheet

metal are purchased and moved rapidly into use, direct mill purchases always have and still do offer economies. However, the quantity that can be advantageously purchased from a distributor also is

often larger than the contractor might expect.

Let a fair cost comparison—not a price comparison—determine whether or not the distributor offers you an opportunity to reduce your costs.

## These 8 Factors Make Up Cost of Possession

### 1) A charge for capital invested in inventory

What should this charge be? It should be equal to the return you could enjoy if this money had been invested in other profit-making endeavors—either outside the company or in expansion of the company's operations. For example, how much could be obtained by investing this much money in the future growth of the company . . . for such items as new machinery, plant expansion, and product research?

### 2) Cost of scrap and wastage that results from carrying your own inventories

No matter how scientifically and carefully you plan your purchasing program, estimates of future sheet metal needs made months in advance on the basis of past experience, long-term forecasts, and predictions of repairs, maintenance and production inevitably contain errors. Accumulation of large inventories against future production or for repair and maintenance frequently encourages slipshod planning and wasteful usage. These costs represent cash waste which must be included in the cost of possession.

### 3) Cost of Obsolescence

Obsolescence is a very real and growing cost, yet one which is almost impossible to pin down. It is the cost few people will discuss—because admission of its existence is admission of an error. Sheets that are awkward to handle because of size frequently are stored out of the way, when it would be better to stand the cost of wastage and remove the sheets from stock.

### 4) Cost of labor for handling

Labor costs for handling raw materials going into stock, caring for them, removing them from stock, processing or cutting them and putting them to use, all contribute to cost of possession.

### 5) Cost of insurance, taxes, and accounting

Cost of insurance and taxes on inventory, clerical cost of handling and processing sheets, and the cost of taking inventory and keeping inventory records are costs of possession.

### 6) Cost of space for storage

A fair charge for space devoted to storage and the cost of operating that space (for example, lights, water, heat, maintenance, depreciation, insurance, and taxes on plant) is part of cost of possession. In the case of sheet metal, a high ratio of square footage for storage per dollar of inventory investment is required. Steel, aluminum, copper and brass sheets must be protected in most areas of the country.

### 7) Charges on capital invested in handling and cutting equipment

Storage calls for racks, skids and stakes. Sheets cannot be easily moved without the use of hoists, lift trucks and buggies. All these items are expensive. The cost of this equipment and its operation are costs of possession.

### 8) Cost of price reduction

Most prices have been going up or holding firm, even during a year like 1956 when the steel strike occurred. This point is not presently as much a factor as it sometimes has been in the past. In fact, occasionally, you have made money on your inventory in the advent of a price increase. When this latter situation takes place, it should be offset against the other cost of possession items we have discussed. However, in recent years there have been times when most dealers have written down their inventories because of price. For example, when high-priced material was purchased from unreliable sources for an emergency, it should be repriced at the current market if not used immediately.



SOME of the many products fabricated by Fox Co. include roof ventilators, stationary louvers, fume removal ducts and fittings, stainless steel drawers and radiator enclosures

# Successful Business Based on Solving the Customer's Problem

**Over 38 years this sheet metal contractor has built a reputation for tackling any kind of a job and doing it well**

"To BUILD a successful business you must first satisfy your customer by always doing the best job you can. If this becomes your basic business philosophy, your business will prosper," said John M. Fox, founder of the John M. Fox Co., Birmingham sheet metal contracting firm, as he celebrated his 38th year in business. This company makes a practice of solving customers' problems by taking on the *out-of-the-ordinary* job along with the standard work that flows through the average shop.

One recent job fabricated by the company was a 30 × 24 in. stainless steel dolly that had to be heavily braced to support a 220-v, 3 phase, 5 hp electric motor, gear reduction box and meat grinder totaling over 1000 lb. The owner of a food processing plant wanted the grinder to be portable so that he might move it around the processing room as needed.

He insisted on stainless steel throughout the dolly to achieve the high standard of sanitation he maintains in his plant. When the suppliers of the machinery he uses couldn't supply the type of dolly he wanted, he recalled that the Fox company made a specialty of solving people's equipment problems.

## Satisfaction Leads to Other Work

Calling Mr. Fox was the beginning of a good business relationship. After making the dolly for the customer, Mr. Fox suggested that stainless steel tables with raised lips could be used to overcome some of the makeshift arrangements in use to process food around special equip-

ment. The first of a number of such tables was built in the shape of an ell and the customer was pleased beyond his highest expectations because of the ease with which the table and the area could be kept clean.

Mr. Fox began his career as a sheet metal worker in 1904 and started his own business in 1919. He says, "Some of the things I learned years ago still come to my aid in solving my customers' problems." One of the early problems presented Mr. Fox was the fabrication of a metal ventilated awning. The first one he made was the first one in Birmingham and is still in use. It was made in 1925 of galvanized sheet metal and painted.

The sheet metal shop is 50 × 75 ft and is equipped with all of the standard manual and motorized tools. (There is also a 50 × 25 ft storage area in the rear.) The variety of tools makes it possible to fabricate almost any type sheet metal product needed.

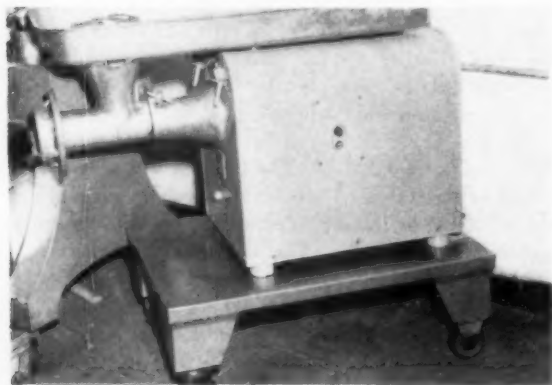
## Manufacturing Keeps Shop Busy

To keep the shop operating at an efficient level, the Fox company fabricates roof flashing and caps for gas vent pipes in about 25 different models. These range from several round sizes to square and rectangular types. Each type is made in several different roof pitch models to fit most of the average hip roofs being erected today. This stock of roof flashings is available to all other contractors in the city.

Patterns for the roof flashings are stored on a coat hanger rack mounted on casters. It is pushed back out



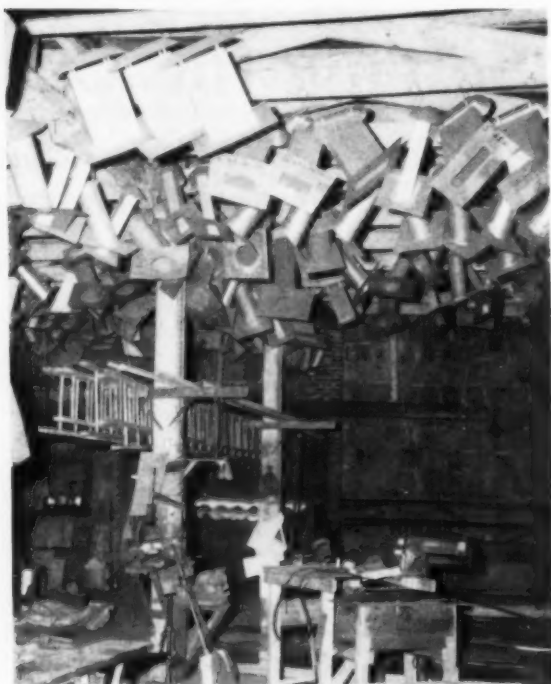
**SPECIAL WORK** is a daily occurrence in the John Fox Co. shop. Here is an extension panel finished to a customer's specifications to enlarge a metal garage



**THIS STAINLESS STEEL DOLLY** had to be specially reinforced to support the 1000 pound meat grinder which was thus made portable



**FORMER CUSTOMER** consults John M. Fox about a stainless steel table similar to this one which helps keep food processing plant sanitary



**FILL-IN WORK** is directed toward building up a stock of a large variety of roof ventilators which are sold to other contractors

of the way when not being used and drawn up to the layout bench when needed.

There have been many changes in the type of work a sheet metal contractor is required to do, compared with the work done during the early days of Mr. Fox's career. For instance, one of the principal types of work in vogue around 1910 was the metal cornices put around the top of buildings, some of these with ornamental brackets and mouldings. Mr. Fox can drive through the streets of Birmingham and point out a large number of buildings

with cornices that he fabricated and installed during his early years in business.

During the early days of warm air heating, the most modern system was a hand-fired coal furnace with one large fresh air duct from the outside of the building because the public considered it unhealthy to use air from the living area. Progress and public acceptance has seen these things change.

Mr Fox is assisted in business by his two sons, Martin E. Fox and John George Fox.



## AIR CONDITIONING IS PROFITABLE BUSINESS!



*"With air conditioning we've  
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—Reports Edward N. Stahler, President, Robinson Furnace Co., Chicago, Ill.



• Mr. Stahler cites an example of the reliability of today's air conditioning equipment charged with "Freon". The installation, a Lennox 3-ton unit, has operated 3 years in a home in La Grange, Ill., without a service call.

"Air conditioning was a natural addition to our heating business," says Mr. Stahler. "Now we're able to furnish a complete year-round system. We've had a definite increase in business from the growing number of people who realize summer cooling is just as important as winter heating."

Robinson Furnace Co. is a leading contractor in the Chicago area with a reputation for top-quality work and efficient service.

"Equal in importance to high-quality workmanship is careful selection of the right components and materials for the job," continues Mr. Stahler. "We always specify Freon® refrigerants because Du Pont makes them—and that's our best assurance of complete satisfaction."

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nical leadership is your assurance of the finest products on the market . . . plus Du Pont's exclusive extra-value services and technical assistance. For more information, contact your complete air conditioning and refrigeration wholesaler, or write: E. I. du Pont de Nemours & Co. (Inc.), "Freon" Products Division, Wilmington 98, Delaware.

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# FREON® REFRIGERANTS

\*Freon and combinations of Freon- or F- followed by numerals are Du Pont's registered trademarks for its fluorinated hydrocarbon refrigerants.



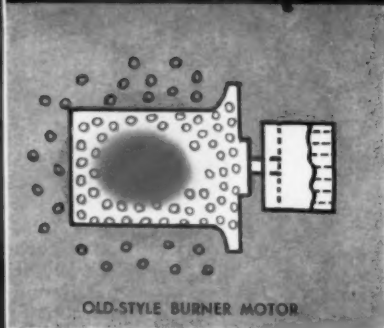
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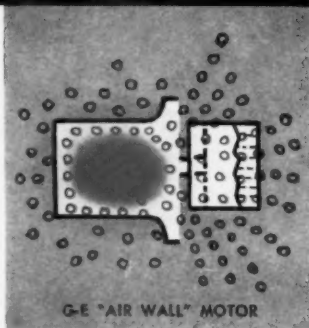
# SERVICE CALLS!

General Electric's oil burner motor with "Air-Wall" trips out less, lasts longer—cuts inventory 50% and makes installation easy

## NOW you get positive heat removal...



OLD-STYLE BURNER MOTOR

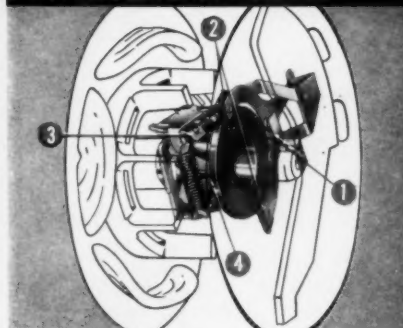


G-E "AIR WALL" MOTOR

Old Style oil burner motors get rid of heat slowly. This slow method of heat removal frequently causes trip-outs which require time-consuming service calls—waste your servicemen's time and cost you money.

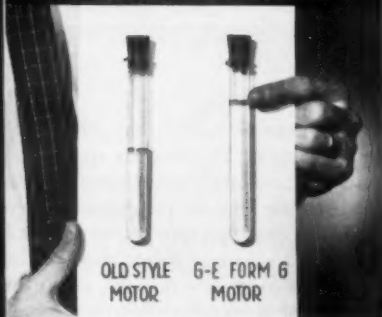
General Electric's "Air-Wall" motor transmits heat swiftly. Trip-outs are rare even in hot, cramped quarters. An invisible "air-wall" stops entry of dirt. Motor meets all Underwriters' Laboratory requirements for totally enclosed designs.

## Get longer switch life



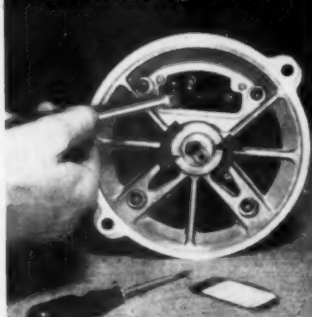
**3½ Million Operations** (equivalent to 100 years' use) have been obtained with G.E.'s wear-resistant switch. Features: 1. Knife-edge hinging, no pins; 2. Textolite\* wear pads; 3. Silver contacts; 4. Snap-action.

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**4-Year Factory Lubrication** practically eliminates reoiling nuisance. Specially designed lubrication system of General Electric's oil burner motor, with 50% more oil, continuously bathes all bearing surfaces with filtered oil.

## Cut inventory in half



**Less Inventory** is required. All G-E burner motors feature interchangeable rotation. Servicemen can easily change any motor to get clockwise or counterclockwise rotation simply by switching leads. Only minimum service stocks are needed.

## Get easy installation



**Easy Handling** and installation are possible even in tight places because G-E motor is over 50% lighter than older designs. For example, the 1/12-hp motor weighs only 10 pounds, yet outperforms heavier motors.

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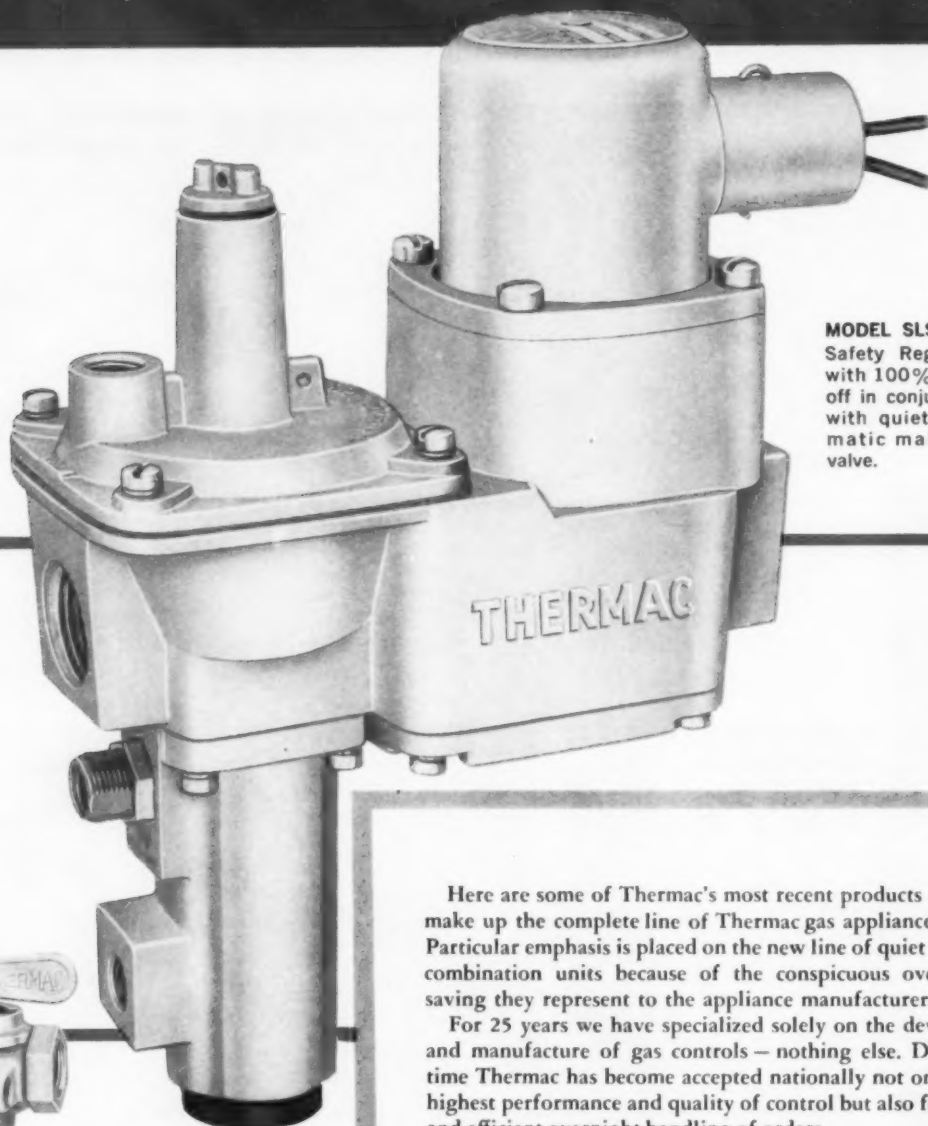
\*Registered Trade-mark of General Electric Company.

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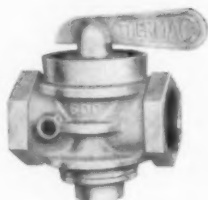
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**MODEL SLS-101**  
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off in conjunction  
with quiet auto-  
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valve.

**MODEL P-300**  
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and pilot valve combina-  
tion.



**MODEL 600**  
Manual main gas shut-off valve.

Here are some of Thermac's most recent products that go to make up the complete line of Thermac gas appliance controls. Particular emphasis is placed on the new line of quiet automatic combination units because of the conspicuous over-all cost saving they represent to the appliance manufacturer.

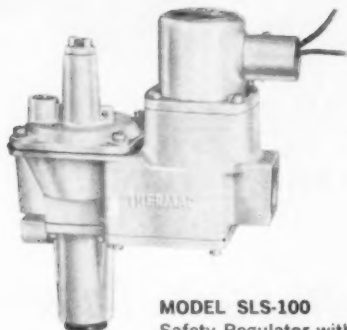
For 25 years we have specialized solely on the development and manufacture of gas controls — nothing else. During this time Thermac has become accepted nationally not only for the highest performance and quality of control but also for prompt and efficient overnight handling of orders.

For complete details of any or all of the controls shown, please write, wire or telephone —

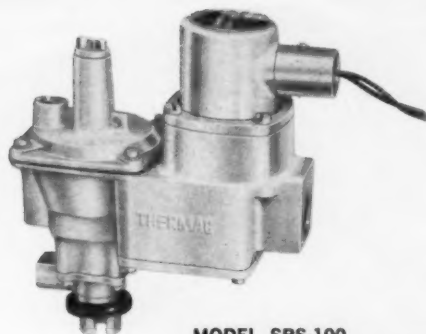
While a representative few of Thermac's products are shown here, there are several hundred other models from which to meet your specific requirements.



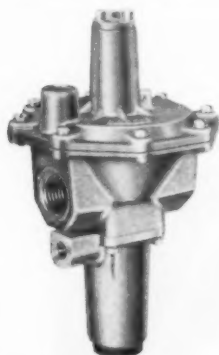
# APPLIANCE BUILDERS LINE OF *Gas* CONTROLS



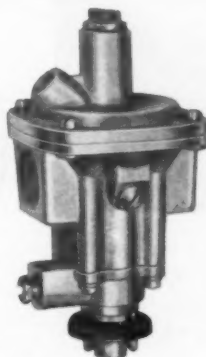
**MODEL SLS-100**  
Safety Regulator with Flow Interrupter in combination with quiet automatic main gas valve.



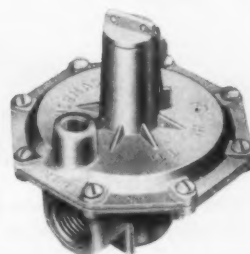
**MODEL SRS-100**  
Safety Regulator in combination with quiet, automatic main gas valve.



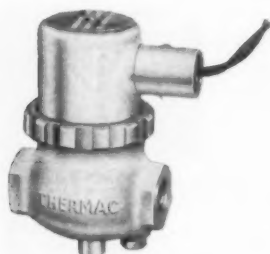
**MODEL SL-200**  
Combination pressure regulator and thermo electric safety.



**MODEL SR-100**  
Combination pressure regulator and thermo electric safety.



**MODEL T-11**  
Gas appliance regulator.



**MODEL LV-25**  
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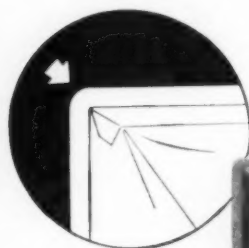
Address

City  Zone  State

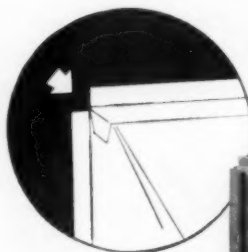
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## Idea Exchange for Dealers, Contractors

# Progress Record Shows Job Status at a Glance

JOB PROGRESS RECORD

Job No.	Furnace Set	Rough-In	Chimney Installed	Trunk Lines	Branch Lines	Fuel Piping	Controls and Wiring	Cleanup	Registers	Test and Balance
712	✓	✓	✓	✓	✓	✓	✓	✓		
713	✓	✓				✓				
714	✓	✓	✓	✓	✓	✓				
715	✓	✓	✓			✓				
716		✓								
717		✓								
718										
719										

CURRENT STATE of each installation can be checked quickly on simplified progress record, which also saves bookkeeping time and helps in scheduling

PROGRESS RECORDS can be invaluable to a dealer in cutting down overhead costs and maintaining an instant check on the status of any job under way. A form used by Darrow Heating Corp., North Hollywood, Calif., has markedly reduced the amount of paperwork required for installing crews on project work.

### Headings Show Job Steps

The 8½ × 11 in. form has 11 headings which represent all the steps in a complete heating installation and show its progress. Each house in a tract development is assigned a number, which is recorded in a vertical column on the left side of the 11-step progress form as well as on the master drawing for the project. The work headings in order from left to right are: furnace set, rough-in, chimney installed, trunk lines, branch

lines, fuel piping, controls and wiring, cleanup, registers, test and balance.

Mechanics are required to check off each operation as it is completed on each job. This saves the mechanic from filling out work reports that are not only time-consuming for him but also make additional work for the office staff. All too frequently, visual progress records are completed as much as two to three days behind actual job progress.

The progress record form used by the Darrow Heating Corp. shows the daily progress of each job. If a job is stopped because of other tradesmen's failure to complete their work, this fact is shown on the record. For example, job 713 in the sample illustration was held up because the foundation for the prefabricated chimney was not yet in place. However, the furnace had been set and the gas pipe connected as shown by the record.

### Record Helps Scheduling

This record also clearly presents the total work picture when more than one crew is working on a project. It shows the houses that are nearing completion and those that must be worked on next to avoid holding up tradespeople following the heating crews.

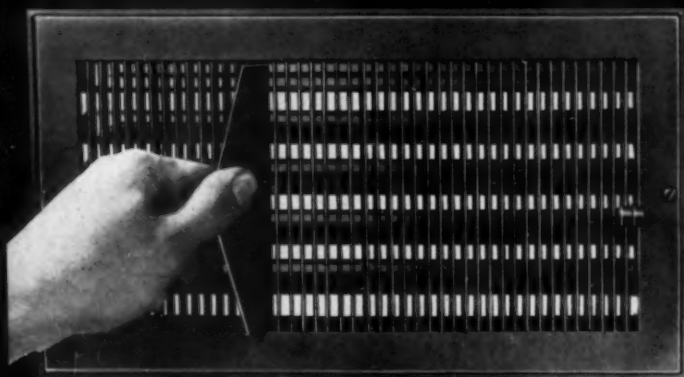
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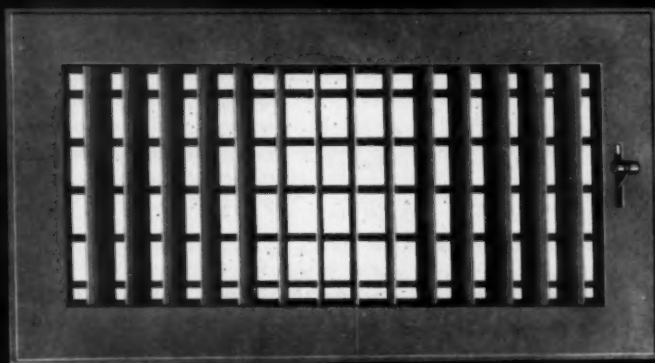


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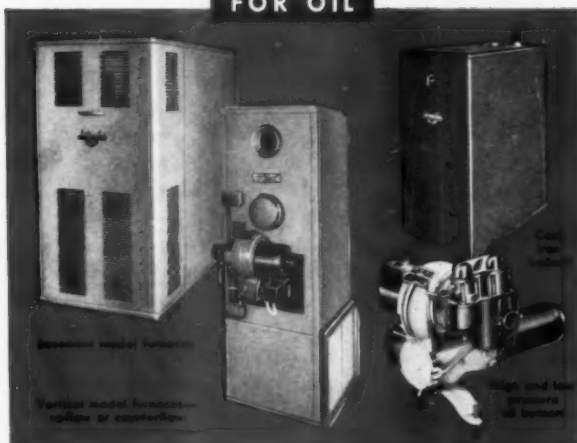
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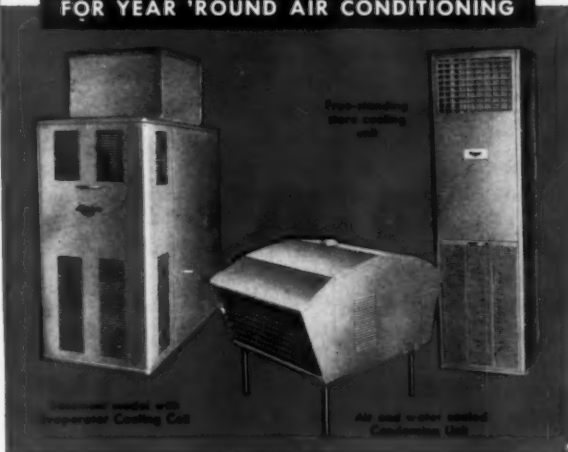
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# Just How Permanent Is a 'Permanent Job'?

**The courts have held that unless a time period is specified a so-called 'permanent job' is for an indefinite period and is terminable at will. But exceptions have been made**

AS WAS WRITTEN over two centuries ago, "It is one of the maxims of the civil law that definitions are hazardous." No words could be more hazardous nor more misleading in their legal definition than the phrase, "permanent job."

In one case a man received a telegram offering him a "regular permanent job" in a nearby city at \$50 a week. This employee telephoned the sender of the telegram, saying that he would prefer keeping his present position where he could be with his family unless the work being offered him was permanent.

"You have my word for it," was the reply, "you'll have a permanent, steady place as I said in the wire." The employee accepted the offer, took the job and at the end of eight weeks was discharged.

### Recovery Is Refused

When he sued for what he contended was a breach of this employment contract the court refused him a recovery. "The question," said the court, "is whether the agreement to give the employee a regular, permanent job means any more than an indefinite hiring terminable in good faith at the will of either party."

"Ordinarily where there is no additional expression as to duration a contract for permanent employment implies an indefinite general hiring, terminable at will. Here the employee shows a promise of permanent employment, simply that and no more," the court concluded.

This decision was adopted as authority for this rule of law in another case only a few months ago. In this latter instance an employee

of two and a half years was directed to attend a three week training course in preparation for work which the employer designated as "a career." Five days later he was discharged.

In its decision of the suit brought by this employee, the court, following this earlier case, denied the employee a recovery. "Since an employment for an indefinite term is terminable at the will of either party without cause, these facts do not constitute a breach of an employment contract by wrongful discharge."

### Term Considered Indefinite

Then referring to that earlier decision the court added, "We deem it not amiss to observe that the legal standing of this employee would not be bettered a single whit if the employer had actually contracted to employ him 'upon a permanent basis.' A mere agreement to give another permanent employment in and of itself implies nothing more than a general or indefinite hiring terminable at the will of either party."

Under some circumstances, however, permanent employment has not the disheartening interpretation for the employee that these decisions would infer. In response to a reply to an advertisement, an applicant for a position was told by an employer that if he wanted the position they would hire him and he would have a permanent job.

In this conversation the employee had said that if he could be sure the job was permanent he would sell his household goods and move his family from the place where he was living, over a thousand miles away, to

the place of this employment. When he was discharged nine months later he sued for damages for the employer's breach of this contract.

### Based Upon a Consideration

In holding the employee entitled to a recovery, the court said of the exception to this rule, "A contract for permanent employment is only a contract for an indefinite period of time and terminable at the will of either party, unless it is based upon some consideration other than the services to be rendered by the employee."

"This employee comes within the exception. The giving up of his job by this employee was not the only detriment suffered. He moved himself and his family and worked for nine months at an inferior job, all pursuant to an expressed understanding that he would do so as part of his arrangement for a permanent job. Whatever may be said of the sufficiency of the giving up of a job, we think the very detriments suffered, supplied sufficient consideration to satisfy the rule mentioned."

This phrase, "permanent employment," was interpreted many years ago by the New York State Court of Appeals. That statement still stands as a summary of the law today:

"An agreement to give a person permanent employment means nothing more than that the employment is to continue indefinitely and until one or the other of the parties wishes for some good reason to sever the relation."

[Note: While this discussion applies to actual cases, it should be remembered that legal rules vary in different states.]



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Key dealers and wholesalers — those who do 80% of the available business — receive this issue as part of their paid subscription. Being the field's only complete Buyers' Guide, it's enthusiastically welcomed. And no wonder . . . look what it contains:

- (1) An alphabetical listing of all products used in Residential Air Conditioning, Warm Air Heating, Sheet Metal Contracting, and manufacturers of each.
- (2) Names and addresses of all the manufacturers.
- (3) A listing of all known trade names, cross-referenced.
- (4) A guide to the products advertised in this issue and the manufacturers' names.
- (5) Normal editorial content of a regular issue to assure immediate cover-to-cover attention.
- (6) Valuable reference data in easy-to-use form.

Each year over 200 advertisers use the January Directory to make sure their product story "gets through" when buying decisions are being made, sources of supply investigated. Will you be among them in 1958?

Nowhere can your advertising dollar be better invested. Take full advantage of this opportunity. Plan now for a spread, an insert, or multiple pages. Regular rates apply (not a 13th or extra-cost number). Closing date December 20.

# AMERICAN ARTISAN

KEENEY PUBLISHING CO. AIR CONDITIONING HEADQUARTERS

6 N. Michigan, Chicago

Have you tried J&L's superior quality

# JALZINC\*

JALZINC is Jones & Laughlin's new trade name for its *high quality* zinc coated steel sheet and coiled product. JALZINC answers your toughest forming, rolling and drawing problems.

Produced by the proven Sendzimir process, JALZINC has a tight, uniform coating that resists cracking and flaking. The high lustre finish greatly improves the appearance of your end product. JALZINC is available in a wide range of gages and widths in both cut lengths and coils.

Users are enthusiastic about JALZINC'S uniform ductility, flatness and surface finish. Write today for complete details.

Jones & Laughlin Steel Corporation  
Dept. 512, 3 Gateway Center  
Pittsburgh 30, Pa.

- ☐ Please send literature on JALZINC  
☐ Please have J&L representative call

Name \_\_\_\_\_

Position \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_

State \_\_\_\_\_



\*Registration applied for.

J&L Inspector examines a roll of 18 gage JALZINC as it is coiled on a reel of the new Sendzimir continuous line.

**Jones & Laughlin**  
STEEL CORPORATION · PITTSBURGH



# WHAT THE ASSOCIATIONS ARE DOING

## Call on Industry to Improve Design, Use Existing Knowledge

A CLARION CALL to the industry was issued by speakers at the Indoor Climate Design conference held on the campus of the University of California at Los Angeles. They challenged all segments to push ahead toward greater progress in design and to work toward greater use of existing knowledge. The two-day meeting was co-sponsored by the Institute of Heating and Air Conditioning Industries.

One speaker, William A. Ray, president of General Controls Co., declared that the concept of introducing conditioned air through a single outlet is obsolete. He called for development of a totally different and revolutionary design approach which would introduce air into the room through new methods, such as utilizing the walls.

Picking up the same point, architect John Rex told the audience that the eventual system developed may involve a double-shell structure as a means of eliminating the network of ducts which are frequently a design problem.

From the consumers' viewpoint, Selma Andrews, Los Angeles newspaper woman, urged further simplification of equipment and installation requirements and further reduction in size of equipment.

Frank Stead, chief of the division of environmental sanitation, California State Department of Public Health, was among those who called for a means to bring greater use of the current fund of knowledge. He saw a need for a central discipline or authority to coordinate activities in the field. The broad but inter-related field of the study and control of air composition is scattered among groups with little means of cooperation, he declared. He said that architects, builders and engineers must plan together so that air conditioning will cease to be merely an expensive afterthought.

As an example of what adequate advance planning can accomplish, John E. Haines, vice president, Minneapolis Honeywell Regulator Co., told of an air conditioned school in Texas built for 7 percent less than the cost of one without air conditioning. He noted that this was the actual dollars and cents saving, without any consideration for the value of the added comfort or increased usability of the building.

Mr. Haines pointed out that despite the advances made in the industry, less than 10 percent of nonresidential buildings are equipped with air conditioning, and a much lower percentage of residences. He blamed this on the failure to understand what air conditioning is and what



GREATER PROGRESS in indoor climate design was urged by panel (l to r): L. M. K. Boelter, UCLA engineering dean who presided; John E. Haines, Minneapolis Honeywell; F. W. Hutchinson, University of California; L. P. Herrington, Yale University, and William A. Ray, General Controls Co.

it means in terms of economic benefits and physical well-being.

He cited many examples of plants which had boosted efficiency by use of air conditioning. In addition, he quoted figures showing total additional cost per month of owning and operating air conditioning equipment. In a \$15,000 home he said the cost of owning and operating a complete air conditioning system will average \$15.60 per month.

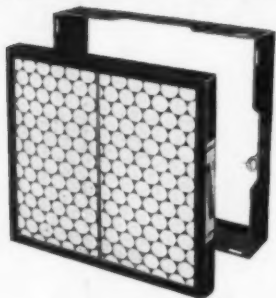
### Western AC Exposition Sets Date

NEW PRESIDENT of the Western Air Conditioning Industries Association is William P. Tennity, Los Angeles. Arthur Hess received the post of vice president and Fred J. Tabery was re-elected secretary-treasurer. Re-elected to the board were Peter Askew, W. W. Allison, Richard Farr, R. E. Harkens, George Hatch, E. L. Nelson, D. E. Reznick, Robert H. Savage, Henry C. Ulovec and Robert Warden. The association is dedicated to the advancement of air conditioning and related industries in western states.

One of the group's major programs has been the Western Air Conditioning, Heating, Ventilating and Refrigeration Conference and Exhibit. The next meeting is scheduled for May 7-11, 1958, at the Shrine Exposition Hall in Los Angeles. The association has decided to hold the exhibit every other year after the 1958 show. In the future the Western show will fall in alternate years with the national shows.

(Continued on page 93)

**EASILY-HANDLED  
FIBREBOARD CASING!**



**AMER-glas**

Features AMERglas glass fibre media in 1" or 2" thicknesses contained in fibre-board casing. Metal frame units available in range of sizes and depths, permitting installation in series.

Here are the  
**BIG 3**  
replaceable-media  
air filters!

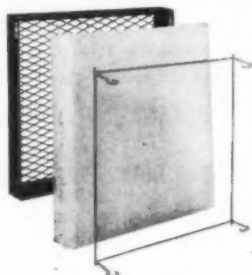
**GREATER DUST-  
HOLDING CAPACITY!**



**RENU VENT**

Uses 3 1/2" AMERglas filtering pads between holding frame and cover. Media depth greatly increases dust-holding capacity without increasing the initial resistance proportionately.

**NO CASING. LOWER  
MAINTENANCE COST!**



**RENU-glas**

Consists of a metal frame and a 2" AMERglas filtering pad. A spring retainer, holding media in frame, eliminates cost of casing to enclose pad and requires far less storage space.

**WRITE FOR BULLETIN 216A**



**American Air Filter**  
COMPANY, INC.

355 Central Avenue, Louisville 8, Kentucky  
American Air Filter of Canada, Ltd., Montreal, P. Q.

AAF Dust  
Control Equipment



AMERglas Replaceable  
Air Filters



**BETTER AIR IS OUR BUSINESS**

Herman Nelson  
Propeller Fans



Herman Nelson  
Unit Blowers



## WITH THE ASSOCIATIONS

(Continued from page 91)



WINNER of 1957 trophy awarded by Chicago Warm Air Golf Association, Otto Zeman (left) receives his prize from Babe Frick, 1956 winner

### Zeman Wins Chicago Golf Trophy

COMPETITION for the Chicago Warm Air Golf Association's championship trophy was very keen this year. The winner was Otto Zeman, and runners up were Wayne Limbert and Charles R. Bennett. Each year since 1937 this trophy has been awarded to the member turning in the two lowest net scores from the association's three outings. This year's third and final meeting was held at the Ruth Lake Country Club, Sept. 24.

Turning in the lowest score for the day was Len Miller, Austin Sheet Metal Works. Others who qualified for prizes were:

Charles R. Bennett, Armstrong Heating Supply Co.  
 Otto Zeman, Barney Olson, Inc.  
 Ivar Anderson, Anderson Heating Co.  
 Harvey Manney, Robinson Furnace Co.  
 George Anderson, Condensation Engineering Co.  
 Chas. E. Price, American Artisan  
 Harry Himelblau, Himelblau Asso., Inc.  
 Babe Frick, Robinson Furnace Co.  
 George Bunt, Jones Sheet Metal Co.  
 John Reock, American Artisan  
 Al Verbeek, Verbeek Heating Co.  
 Larry Ingham, Aire-Flow Heating and Air Conditioning Co.  
 Lars Schulein, L. E. Schulein Co.  
 Mel Jackson, Wolverine Tube Div., Calumet and Hecla, Inc.  
 William E. O'Connor, Acme Furnace Fitting Co.  
 B. A. Johnson, Condensation Engineering Co.  
 Walter L. Aschliman, Condensation Engineering Co.  
 John J. Nimeth, Robinson Furnace Co.  
 Harry Duerst, Lennox Furnace Co.  
 Neil Manney, Robinson Furnace Co.  
 Wayne Limbert, Condensation Engineering Co.

Blind Bogey winners were Dan Collins, Harvey



BRIDGE FILLED THE EVENING for Chicago Warm Air Golf Association members (l to r) Charles R. Bennett, Neil Manney, Walter Aschliman, Harvey Manney

Manney and John Reock. The non-golfer's prize was awarded to Walter Piczek.

During the annual business meeting a nominating committee consisting of Charles R. Bennett, chairman, Harry Himelblau and Joe Butler was appointed to screen and recommend officers for the 1958 season. They are to prepare a list of names for president, vice president, treasurer, secretary and a program captain. This group will meet during the winter and new officers will be selected at the association's first meeting in May 1958.

At the close of the business meeting the membership adjourned to the club rooms for bridge and pinochle games.

### Columbus Begins Membership Drive

A REVITALIZED PROGRAM to attack local industry problems is being used as the keynote of a drive for new members by the Heating, Air Conditioning and Sheet Metal Association of Columbus, Ohio. With the hiring of its first executive secretary and the establishment of a central office, the Columbus association has a good start on its plan to create better public relations for the industry and strengthen business for all. Areas which will receive particular attention include ethical practice, self-education, general industry problems, as well as the effort to increase membership in the city and surrounding territory.

Officers elected to guide the program during the coming year are W. Ed Bogen, president; Arthur R. Haire, vice president; Dwight C. Sweptson, secretary-treasurer. Warren R. C. Armstrong has been retained as executive secretary and general counsel. Directors in addition to the officers are Richard C. Norland, Robert L. Weaver, Elmer Custer, Adam Pataky, James Favret and Donald Nichols.

(Continued on page 94)

## WITH THE ASSOCIATIONS

(Continued from page 93)

At a recent meeting members discussed credit problems now facing local dealers. Definite steps are planned to put members in closer touch with sources of credit information. The September meeting featured a study of service problems.

### Hold Illinois Meeting at Mooseheart

A DISTRICT MEETING of the Illinois Sheet Metal, Air Conditioning and Roofing Contractors' Association was held in September at Mooseheart, famed city of orphaned children maintained by the Loyal Order of Moose.

At the morning meeting members heard a discussion of the association's group life and hospital insurance plan.



DISTRICT MEETING of Illinois Sheet Metal, Air Conditioning and Roofing Contractors Association included luncheon at Mooseheart where apprentice program has been aided by members

William Tippet, Waukegan, told of progress made by a committee, which he heads, to investigate ways to encourage the growth of sheet metal training programs in high schools.

H. M. Gallaspie, head of the sheet metal training program at the Mooseheart high school, thanked the association for its aid to the training program. The school was recently presented with a complete gas furnace and a complete set of various controls and a supply of textbooks.

Members and their wives attended a buffet luncheon following the meeting and then were invited to be guests at an afternoon football game at Mooseheart stadium. Following the game the school's sheet metal shop was open for inspection. A number of students in the sheet metal program were also guests of the association.

### Canadian Association Honored

IN RECOGNITION of its meritorious contribution to the upgrading of the industry through its Certified Bonded Heating Program, the National Warm Air Heating and Air Conditioning Association of Canada was honored by

an Award of Merit by the American Society of Association Executives.

A distinguished jury examined the entries and made 17 awards in several classifications. Serving on the jury were Ernest Swigert, president of the National Association of Manufacturers; John A. Dotson, dean of the college of education, University of Georgia; John S. Coleman, president of the Chamber of Commerce of the United States; Very Reverend Paul C. Reinert, J. C., president of St. Louis University, and as chairman, Sinclair Weeks, U. S. Secretary of Commerce.

The entries upon which awards are based are distributed in permanent form to schools, reference and public libraries and to business and industry.

Commenting on the award, the Canadian association said that it is further proof of the value of the Certified Bonded Heating program offering protection which the home owner has sought for many years.

### AMCA Appoints Executive VP

THE APPOINTMENT of Marshall F. Allen as executive vice president of the Air Moving and Conditioning Association was announced last month. He succeeds L. O. Monroe, who will retire. Mr. Allen previously was manager of the Magnesia Insulation Manufacturers Association. He will be responsible for administrative planning, direction and operation of the association's program.

Earlier the organization announced the election of nine new directors. Serving a one year term are L. Macrow, Carrier Corp.; R. A. Wasson, Clarage Fan Co.; E. J. Stone, Propellair Div., Robbins and Meyers, Inc.; W. A. Curtis, Blower Div., Peerless Electric Co.; Wallace Allen, Jr., American Coolair Corp.; J. J. Merrick, John J. Nesbitt, Inc.; W. H. Rietz, Ilg Electric Ventilating Co.; J. W. Wilcock, Sturtevant Div., Westinghouse Electric Corp.; and C. W. Lockhart, Blower and Air Div., Buffalo Forge Co.

### OHI Enlarges Board of Directors

ENLARGEMENT of the board of directors of the Oil-Heat Institute of America to 61 members has been announced. The board now consists of 31 members from the manufacturers' division, 15 from the accessory division and 15 from the distribution division.

New directors elected from the manufacturers' division include: John Hancock, Marietta Metal Products Corp.; Harry Rohrer, Herco Oil Burner Corp.; H. McClure, Kewanee Boiler Division, American-Standard; H. L. Mandelburg, Manville Boiler Co.; W. D. Wood, Timken Silent Automatic Div., Scaife Co.; Joe Eubanks, V. & E. Products, Inc.; D. A. Campbell, Eclipse Fuel Engineer-

(Continued on page 98)





## THEY SMASHED INTO THAT WEIRKOTE<sup>®</sup> TILL WE COULDN'T STAND IT!

When a half-ton steel wrecking ball smashes broadside on target—mister, that's a *test*.

Yet, when Weirkote zinc-coated steel is put through that, or equally brutal punishment, its zinc coating stays skin-tight throughout the ordeal.

Think of that demonstration in terms of *your* products, production steps and cost problems.

Weirkote's continuous-process zinc coating *thrives* on toughest fabrica-

tion steps—spinning, deep drawing, roll forming, extrusion. And there's no flaking or peeling.

With Weirkote, you can eliminate the cost of plating, painting or redipping after fabrication. In many instances, you'll get prolonged die life, too, due to the lubricating quality of Weirkote's zinc coating.

### Free Weirkote Booklet

Send for the new booklet on Weirkote today. Write Weirton Steel Company, Dept. J-6 Weirton, West Virginia.



**WEIRTON STEEL  
COMPANY**

WEIRTON, WEST VIRGINIA

a division of

**NATIONAL STEEL CORPORATION**



## CHRYSLER'S *Airtemp* FURNACES

***sell easier***  
***install easier***

You sell faster *and* make more money when you are a Chrysler Airtemp dealer. Here's why!

- Your customer knows the Chrysler name...has respect for Chrysler engineering.
- Customer can add matched Airtemp cooling any time. Furnace has an extra-capacity blower.
- Furnace is lightweight, compact...factory-assembled and tested for faster installation.
- Furnace is unusually trouble-free. Complaints are few...service calls don't eat up your profits.

For all the facts on an Airtemp heating franchise, write Airtemp Division, Chrysler Corporation, Dayton 1, Ohio.



HEATING AND AIR CONDITIONING  
FOR A ROOM, A HOME, A BUSINESS,  
AN AUTOMOBILE

## HOW TO CONVERT A CELLAR INTO A SELLER

Most heating service calls begin and end...in the cellar. Now study this picture. Note the upstairs thermostat. Sure it works, after a fashion, but it looks old fashioned and the mechanism is completely out of date. So here's a red hot opportunity to upgrade the sale.

Next time your customer calls for service, have your serviceman call upstairs, too. Many homeowners are ready for a modern room thermostat replacement. Perhaps the famous General Controls "Tempotherm" for topnotch day-night control, or the beautiful T-90 horizontal model—the modern design that harmonizes with any room.

Whatever the choice, **you can be sure** it will have built-in MERCURY SWITCH DEPENDABILITY, as do all of General Controls complete line of room thermostats for every heating or cooling need—whether gas, oil, coal or electric...warm air or hot water heating.

5 basic styles harmonize with any architectural or decorating theme

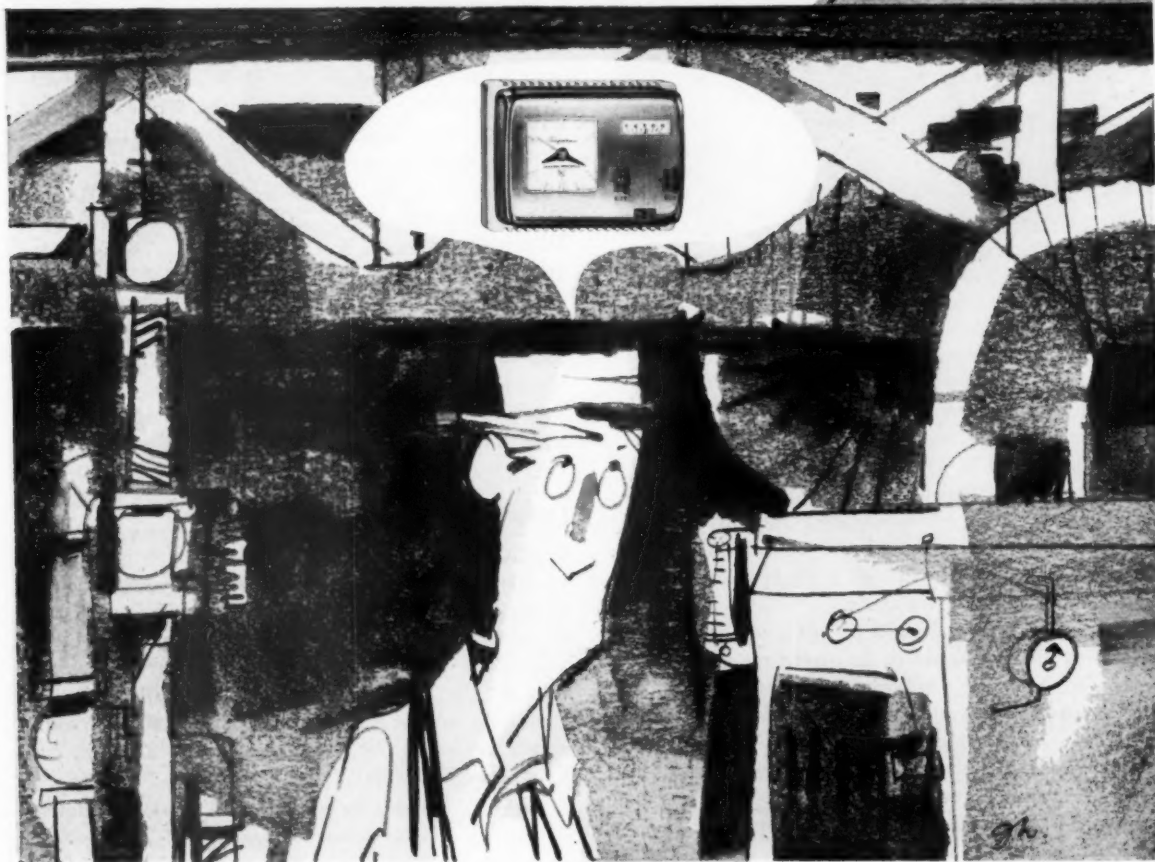


## GENERAL CONTROLS

*America's Finest Automatic Controls for Home, Industry, and the Military*

Glendale, California • Skokie, Illinois

*Five Plants—42 factory branch offices serving the United States and Canada*



## WITH THE ASSOCIATIONS

(Continued from page 94)

ing Co.; G. A. Taylor, Bethlehem Foundry and Machine Co., and Robert Andler, Electrol Burner Manufacturing Co.

From the distribution division new directors were William F. Kenny, Levittown, Pa., and R. A. Young, Waterloo, Iowa. One distribution seat was left open.

Representing the accessory division, the new directors were K. L. Wilson, Minneapolis Honeywell Regulator Co.; Fred Weldon, Perfex Division, General Controls Co.; Bob Hundley, William Steinen Mfg. Co. and E. B. Frame, Monarch Manufacturing Works, Inc.

### Fox Valley Hears Standards Story

HEATING COMFORT STANDARDS were the subject of the September meeting of the Fox Valley Furnace and Sheet Metal Contractors Association. Clyde M. Barnes, editor, American Artisan, described the technical background from which the standards had been developed. He also



STANDARDS for Rating Heating Systems are studied by Fox Valley Assn. members (l to r) Peter Jungles, George Bushman, H. M. Gallaspie, John Rubo, Joseph Strotz

showed how this information, reduced to the layman's language, could be used to sell better heating systems that not only mean more comfort for the home owner but a better profit for the dealer making the installation. Mr. Barnes pointed out that the 12 points listed on the card describing the *Standards for Rating Heating Systems* soon move the sales presentation from a discussion of how much it would cost to install a job to the subject of comfort in every room in the house.

Examples of how dealers in all parts of the country were using the standards to help upgrade sales were given. The continuing editorial program designed to point out specific ways that would help dealers to form their own promotion plans was reviewed. Also described were the steps that some local associations had taken to inform the public on how to buy a heating system. Examples of these included the Milwaukee association's

two page ad in the Sunday home building edition of the Milwaukee Journal in which all 12 points of the standards were listed along with the names of the association's members who would explain the standards to people interested in purchasing a new heating system.

In the discussion period that followed Mr. Barnes' speech, the officers of the Fox Valley association took steps to set up an advertising program in which ads would be published in the two newspapers covering the Fox River Valley. These newspapers are located in Aurora and Elgin. The ads would be under the sponsorship of the association and would outline to the public how best to contact a dealer who would install a "Good" heating system as outlined in the *Standards for Rating Heating Systems*. The method of financing these ads will be discussed at the next meeting of the association.

### GAMA Elects New Officers

CLIFFORD V. COONS, Rheem Manufacturing Co., was elected president of the Gas Appliance Manufacturers Association at its annual convention last month in St. Louis. He succeeds Julius Klein of Caloric Appliance Corp.

Edward A. Norman, Jr., Norman Products Co., became first vice president. Second vice president is Wendell Davis, Cribben and Sexton Co., and re-elected as treasurer is Stanley H. Hobson, Geo. D. Roper Corp.

New chairmen of various product divisions include: S. L. Kile, Baso, Inc. — Automatic Controls Div.; Wayne H. Schutmaat, Penn Controls, Inc. — Gas Appliance Regulator Div.; H. P. Mueller, Jr., Mueller Climatrol Div., Worthington Corp. — Gas Conversion Burner Div.; Edward P. Hayes, C. A. Olsen Mfg. Co. — Gas Furnace Div.; William R. Hebert, Calcinator Corp. — Gas Incinerator Div.; Robin A. Bell, Surface Combustion Corp. — Gas Unit Heater and Duct Furnace Div.; B. A. Johnson, Condensation Engineering Corp. — Gas Vent and Chimney Div.; A. J. Horn, Day and Night Mfg. Co. — Gas Wall and Floor Furnace Div.; and David C. Cannon, Lawson Mfg. Co. — Gas Water Heater Div.

### Launch Cleveland AC School

A PROGRAM equal to any college short course is promised by Ray O'Hara, executive secretary, Cuyahoga County Sheet Metal Contractors Association, for the first air conditioning school sponsored by the association in Cleveland. Guest speakers from various parts of the country highlight the 14 week course. Registration is limited to 21 and the cost of the complete course is \$15. The first session was held on Sept. 25. The meetings are from 7 to 9 p.m. each Wednesday.

Subjects covered include: basic refrigeration, refrigera-

(Continued on page 102)



the only tool  
you need  
to install  
**AUER "Perfusaire"**



Installation of the Auer "Perfusaire" wide-angle perimeter diffuser is quick and easy. A few twists of the screwdriver, and the job is done.

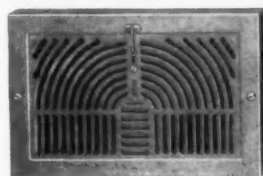
You don't need snips, because the duct opening is pre-cut to fit a 2 1/4" x 12" boot. To fit the "Perfusaire" to a 2 1/4" x 14" boot, simply remove the knockouts. Built-in retaining clips hold the body firmly to the boot. Two screws fasten the Perfusaire to wall or floor.

A slight turn of the center screw adjusts the "Perfusaire" patented "Limit-Lock" which holds the built-in damper permanently in the position you want to balance the air flow.

The speed and simplicity of "Perfusaire" installation makes it a real time and labor saver . . . results in welcome cost reductions up to 50%!

"Perfusaire" has many other exclusive features which make it desirable from both the installer's and the user's point of view. They are fully explained in Bulletin P-54. Write for your copy today.

**AUER PERFUSAIRE . . .** For baseboard installation. Only 18" long, but with capacity of 4 to 8-foot diffusers. Installs in or against wall. Comes completely assembled. Provides "perfect-pattern" air flow for heating or combination cooling and heating systems.



**AUER FANAIRE 200 SERIES . . .** For high or low sidewall installation. Can be used as ceiling outlet.



**AUER DRP FLOOR PERIMETER REGISTERS** with built-in dampers. Available in sizes 2 1/4, 4, and 6 inches wide . . . 10, 12, and 14 inches long.



**THE AUER REGISTER CO.**

"REGISTERS AND GRILLES  
FOR EVERY HEATING AND COOLING NEED"

**6602 CLEMENT AVENUE • CLEVELAND 5, OHIO**  
In Canada: Superway Products, Tilbury, Ontario  
In Europe: Auer Continental, 20 Osystr., Antwerp, Belgium

# HOME REMODELING AND FURNACE REPLACEMENT

Call for MODERN  
AIR DISTRIBUTION SYSTEMS  
DESIGNED FOR YOUR USE BY  
**CHAR-GALE**



Homeowners bringing older homes up-to-date, want more than half-way measures . . . and with Char-Gale "Gale-Aire" comfort air distribution systems, you can go *all the way* to provide satisfaction. Complete Char-Gale perimeter systems, engineered for efficient operation and improved appearance, offer a welcome contrast to the bulky, old-fashioned equipment they replace.

## FOR BOTH HEATING AND COOLING

The question of *complete* air conditioning is under control with Char-Gale. That's because Char-Gale fittings, ducts and registers are designed to handle *both* heating and cooling.

### SIMPLE INSTALLATION

All the elements of Char-Gale systems fit together quickly and easily — no strain, no pain.

### EFFICIENT OPERATION

Designed and tested for overall performance that will give true customer satisfaction.

### IMPROVED APPEARANCE

The *neat* look of Char-Gale small pipe systems is a "feather in the cap" of the installer.

### BETTER USE OF SPACE

There's plenty of head room in a basement with the Char-Gale ductwork tucked out of the way.

### COMPLETELY PACKAGED

Protected against damage, all Char-Gale material is easily stored right in the cartons.

### ONE SOURCE

Complete air distribution systems; no worry about matching units from different sources.



... Coming soon from Char-Gale

## GET *Your* SHARE

of this profitable replacement  
and remodeling market

Distributors, Wholesalers and Dealers who stock the simplified "Gale-Aire" system, get a *complete, modern* air distribution line that's easy to store, sell and install. And it's not necessary to tie up capital in large inventories of duct, fittings and registers. Char-Gale trucks travel anywhere in the country, *in a hurry!*

Contact your jobber or write us.

# Char-Gale

MANUFACTURING COMPANY  
ANOKA, MINNESOTA

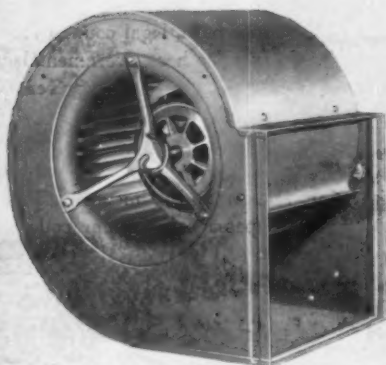
## DEFEND YOUR LEADERSHIP

*with these products of  
Lau Engineering Leadership  
on view at the  
10th EXPOSITION, A.R.I.*

**BOOTH  
543**

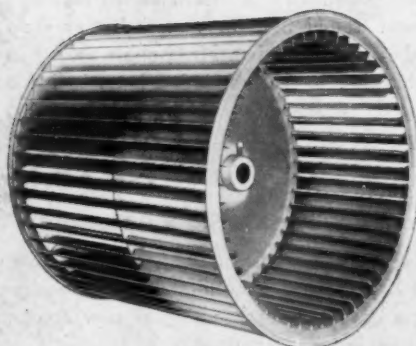


New product developments that are keeping Lau ahead of industry requirements... late news on finishes... forecasts of things to come from our Engineering Department: *You will certainly want to hear the latest news from Lau!* See us at Booth 543, Air-Conditioning and Refrigeration Industry, International Amphitheatre, Chicago, November 18-21.

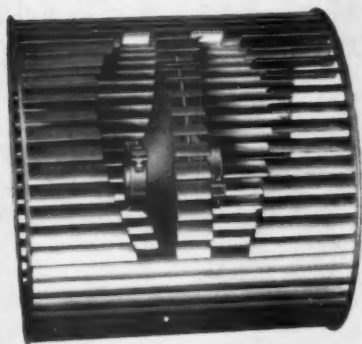


### **Electro-Wheel® Blower**

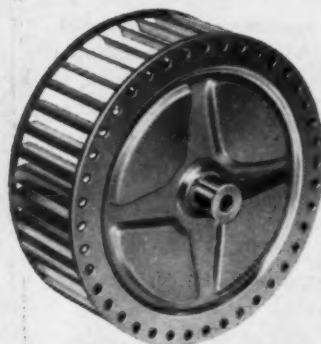
The Lau exclusive, patented unit that delivers more air with less power load than ever before! See its advantages for yourself.



**Preslok® Wheel.** New, 18" dia. addition to this famed Lau family of wheels will be on view. Speeds at least 50% over catalog ratings are now possible!



**Large-Bore Wheel.** Now! a wheel applicable to shafting 2" to 4½" diameter. Hub is extruded from center discs for minimum weight.



### **Small Weld Wheels**

Improvements in Lau 4" to 9" wheels, made possible by continuing field work, will be an interesting feature of our exhibit.



**THE LAU BLOWER COMPANY**

In Canada: The Lau Blower Co. of Canada, Ltd., Kitchener, Ont.

2027 Home Ave.  
Dayton, Ohio  
Azusa, Calif.

tion cycle in air conditioning, properties of air, residential heat gain, commercial and industrial heat gain, ventilation infiltration, equipment selection, ductwork, grilles and diffusers, piping and wiring, operation cost estimates, air conditioning accessories, insulation and acoustics. The last two sessions will include the final examination and a graduation party.

## Georgia Names Fulltime Secretary

AN IMPORTANT STEP forward was made by the Sheet Metal, Roofing, Heating, Air Conditioning Contractors Association of Georgia with the appointment of B. L. Noblitt as fulltime secretary of the organization. Plans were also announced to move the administrative office from Augusta to Atlanta.

Retiring president L. D. Herndon, in making the announcement, stated that the remarkable progress made during the past year when Mr. Noblitt was giving only half of his time to the association is an indication of a desire by the represented industries to provide a virile and progressive organization.

## Wholesalers Discuss Slow Accounts

THE QUARTERLY MEETING of the Chicago chapter of the National Heating and Airconditioning Wholesalers, Inc., featured a discussion of handling of slow accounts and other current industry problems.

President Charles R. Bennett read a report from the national association on the practice of charging a one percent service charge on overdue accounts. The report indicated little resistance to the charge at the dealer level. After some discussion, the advisability of applying the service charge in the Chicago area was questioned. Rogers Follansbee cited a case where the charge had been used without particular success. Members were asked to give the subject further thought for discussion at a future meeting.

A committee was appointed to contact bankers and savings and loan officials to develop a program whereby builders could be encouraged to process their loans soon after beginning construction. This action would make it possible for dealers to collect their bills more rapidly and avoid overdue suppliers' bills.

Mr. Bennett noted that the sales of heating equipment are closely related to the prosperity of the home building industry. He asked whether or not any member had data which would connect this fact with cooling sales. Rogers Follansbee said his dealers had found 95 percent of their cooling sales coming from recent purchasers of heating systems. This source of leads had helped his company maintain its cooling volume even though heating sales had declined.

Mr. Bennett indicated that he felt commercial heating sales primarily developed with the education of the architect, and that steps should be taken to encourage the specification of warm air equipment to broaden commercial sales.

He also suggested the development of a program to aid dealers who have specialized in new house work to move into the old house field. All of those in attendance supported his opinion that the old house market was a rich source of sales if properly developed.

The members also discussed details connected with the national convention to be held in Chicago, Nov. 18-20.

## Grand Rapids Reviews Heating Code

GUEST SPEAKER at the October meeting of the Grand Rapids Heating and Air Conditioning Association was Attorney Clifford C. Christenson, legal counsel for Grand Rapids township and several other governmental groups. He expressed his views concerning the present Grand Rapids heating ordinance and the desirability of increasing its value to the general public and the industry in the city and surrounding territory. The Grand Rapids ordinance is being revised and a movement has been underway to encourage passage of similar codes in surrounding townships.

## Cincinnati Holds Annual Outing

THE ANNUAL golf outing of the Cincinnati Sheet Metal Contractors Association was held in September at the Ryland, Ky., Country Club. After an afternoon on the links, members enjoyed a dinner followed by the regular business meeting.

## Plan Bigger Southeast Trade Show

EXHIBIT SPACE for the 1958 Southeast Trade Exposition is rapidly disappearing and already exceeds the area used for last spring's highly successful show. The exposition will be held March 27-30 at the Atlanta Biltmore Hotel. All space in the Biltmore Exhibition Hall has been obtained for this show in anticipation of greatly increased interest and attendance. More than 14,000 sq ft of exhibits is planned for viewing by dealers, architects and engineers who wish to keep up to date on new developments and broaden their knowledge of the field.

The show will be supplemented by an informative and educational program featuring outstanding speakers from all over the country. Problems to be discussed include the struggle against higher costs and the problem of the decline in new construction and the increased importance of the modernization market.

(Coming Events on page 106)



*No service call tonight...*



## ROBERTSHAW DEPENDABILITY

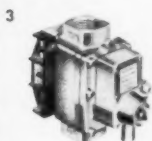
*stands guard at 4 vital  
central heating points!*



**WALL THERMOSTATS TR series**... "fashion-right at home" in any decor, detachable ring for painting... easy-to-read double dial eliminates squinting. Snap-action switch is completely enclosed to seal out foreign particles. Features adjustable heat anticipation. Requires no leveling to install!  
**DT series**... low cost, yet highly reliable. Attractive bronze finish, fixed heat anticipation.



**COMBINATION FAN & LIMIT (FAL 40D)** Compact, easy-to-install... fan and limit terminals separated to allow extra space for quicker, easier wiring. Limit switch features gold-plated contacts for positive operation, may be used to control line, low voltage or millivolt circuits. Fan and limit control settings adjustable, approx. 20° fixed limit differential.



**MODEL HC-E** A new, hi-capacity gas heating control, actually 2 controls in one... automatic pilot with thermo-magnetic, 100% gas shut-off, built-in pilot filter and adjustment and a SILENT, positive, snap-action gas valve... includes limit switch terminals.



**#9 PILOT AND NEW SUPER-CLAD THERMO-COUPLE** An unbeatable combination for positive, safe operation. #9 Pilot features flame-retaining double hood to provide improved main burner ignition. New Robertshaw-Grayson Super-Clad Thermocouple generates greater electrical output... eliminates service calls caused by needless outages—yet costs no more!

*To discover exactly how and why dependable Robertshaw Central Heating Controls can save costly service calls... protect profits... contact your Robertshaw-Grayson representative today!*

A COMPLETE  
SELECTION OF DEPENDABLE  
CENTRAL HEATING CONTROLS!



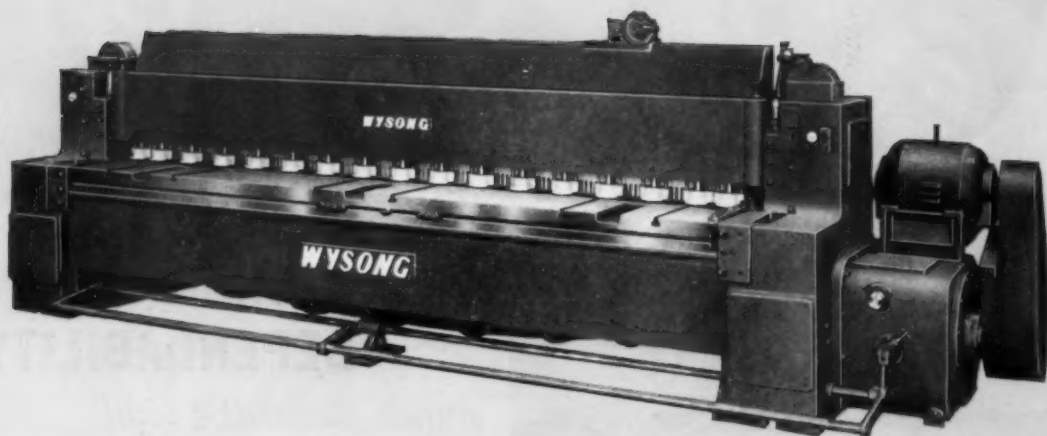
Mr. Controls

**Robertshaw-Fulton**

**CONTROLS COMPANY**

GRAYSON CONTROLS DIVISION

Long Beach, California



Wysong  
Squaring Shears  
are

Wysong No. 1225, capacity  $\frac{1}{4}$ "  
mild steel, cutting length 12 feet.

**RUGGED** to resist shock and pounding  
**RIGID** to maintain accurate alignment

The primary function of Wysong Shears is to give you maximum production with unsurpassed accuracy — day after day, month after month. Their massive hi-tensile castings assure greater resistance to deflection. Their extra large, accurately machined bearing surfaces prevent twists and binds.

Holddowns provide all the power needed for positive clamping of stock — yet, are easily adjusted to prevent marring soft metals or polished sheets.

Ball-bearing, precision back gauges are designed and built to withstand the impact of volume shearing. Easily adjusted to compensate for eventual wear.

Automatic lubrication is standard on larger models — one-shot lubrication on smaller models.

Safety features include totally enclosed clutch and gears, adjustable stationary finger guards, non-repeat unit and treadle lock.

*Buy A Wysong ... It's Miles Ahead*

Simplicity of operation and superior design are keys to low maintenance and low down time.

Power models are available with cutting lengths from 48 inches through 12 feet — capacities from 16 gauge through  $\frac{3}{8}$ " mild steel.

For greater accuracy, larger volume, easier operation and the finest in design — Buy a WYSONG . . . It's MILES Ahead!

**WYSONG**



Wysong and Miles Company  
Greensboro, N. C.

# 3 BIG REASONS:

1. A COMPLETE  
LINE  
HEATING & COOLING

2. PRICED  
RIGHT

3. QUALITY  
STYLE, DESIGN  
CONSTRUCTION

MOR-SUN { \$ALE\$ } FOR  
MEANS { PROFIT\$ } YOU

You can close every sale — when you're a Mor-Sun Merchant. You're able to offer a furnace and air conditioner for every home heating and cooling requirement — units your customers like and want. They're attracted to the clean lines, the new features, the modern styling and quality construction. Best of all — they like the price. You will too — because it will help boost your sales — and, at the same time, boost your profits.

## THE YEAR-ROUND LINE FOR YEAR-ROUND PROFITS

...here's why you get "MORE" with MOR-SUN

### UPFLOW, REVERSEFLOW & LO-BOY FURNACES

- ... gas or oil, in a complete range of sizes
- ... thermo-dynamic heat exchanger
- ... guaranteed in writing for 10 years

### HEATING- COOLING COMBINATIONS

- ... easy to install in minimum floor area
- ... attractively finished, two-tone green, copper trim
- ... economically efficient, heating or cooling

### AIR & WATER- COOLED AIR CONDITIONERS

- ... complete residential and light commercial line
- ... full rated cooling capacities
- ... precharged systems on air-cooled models



MOR-SUN OFFERS YOU  
one of the soundest business  
opportunities open to  
heating distributors and dealers.  
For all the details — call,  
wire or write.

*You get so much more with*

# MOR-SUN

HEATING AND AIR CONDITIONING



Mor-Sun Division, MORRISON STEEL PRODUCTS, INC., 609 Amherst St., Buffalo 7, N. Y.

In Canada, Mor-Sun Limited, 62 Laurel St. East, Waterloo, Ontario.



# Coming Events

## November

- Nov. 18-20 — National Heating & Airconditioning Wholesalers, Inc., annual convention. Hotel Morrison, Chicago. W. R. Bull executive director, 1200 W. Fifth Ave., Columbus, Ohio.
- Nov. 18-21 — Air-Conditioning and Refrigeration Industry, 10th exposition, International Amphitheater, Chicago. Air-Conditioning and Refrigeration Institute, 1346 Connecticut Ave., N.W., Washington 6, D.C.
- Nov. 19-20 — National Warm Air Heating and Air Conditioning Association, board and committee meetings. Hotel Morrison, Chicago. George Boeddener, managing director, 640 Engineers Bldg., Cleveland 14.
- Nov. 21-22 — National Warm Air Heating and Air Conditioning Association, annual convention. Hotel Morrison, Chicago. George Boeddener, managing director, 640 Engineers Bldg., Cleveland 14.

## 1958

### January

- Jan. 19-23—National Association of Home Builders, annual exposition. Conrad Hilton and Sherman Hotels and the Coliseum, Chicago. John M. Dickerman, executive director, 1625 L St., N.W., Washington 6, D.C.
- Jan. 27-29 — American Society of Heating and Air-Conditioning Engineers, 64th annual convention, Pittsburgh, Pa. A. V. Hutchinson, executive secretary, 62 Worth St., New York 13.

### February

- Feb. 2-5 — New York State Sheet Metal, Roofing and Air Conditioning Contractors' Association, annual convention. Van Curler Hotel, Schenectady, N.Y. Clarence J. Meyer, executive secretary, 569 Genesee St., Buffalo 4, N.Y.
- Feb. 6-7—Sheet Metal and Warm Air Heating Contractors' Association of Indiana, 40th annual convention. Hotel Severin, Indianapolis, Ind. F. E. Anderson, executive secretary, 439 S. 17th St., Terre Haute.
- Feb. 10-12 — Sheet Metal Contractors Association of Illinois, annual convention. Pere Marquette Hotel, Peoria. Jay E.

Harms, secretary, 1619 N. Sheridan Rd., Peoria.

- Feb. 17-20 — Seventh Annual Industrial Ventilation Conference. Kellogg Center, Michigan State University, East Lansing, Mich. James C. Barrett, Michigan Dept. of Health, Lansing 4, Mich.

- Feb. 20-22—Sheet Metal and Roofing Contractors' Association of Minnesota, annual convention. Hotel Duluth, Duluth. Richard Grant, executive secretary, 867 Grand Ave., St. Paul 5, Minn.

### March

- Mar. 3-5—Ohio Sheet Metal Contractors' Association, annual convention. Commodore Perry Hotel, Toledo. Don Dieterle, chairman, 2112 Maplewood, Toledo 6.

- Mar. 4-5—National Warm Air Heating and Air Conditioning Association of Canada, manufacturers meeting and annual convention. Seaway Hotel, Toronto. J.D. Grant, chairman, Honeywell Controls Ltd., Leaside, Toronto, Ont.

- Mar. 10-12—Sheet Metal Contractors' Association of Wisconsin, annual convention. Hotel Schroeder, Milwaukee. Robert S. Schmieder, executive secretary, 8320 W. Bluemound Rd., Milwaukee.

- Mar. 27-30 — Southeast Trade Exposition sponsored by Sheet Metal, Roofing, Heating, Air Conditioning Contractors' Association of Georgia. Atlanta Biltmore Hotel, Atlanta, Ga. B. L. Noblitt, executive secretary, P. O. Box 1196, Augusta, Ga.

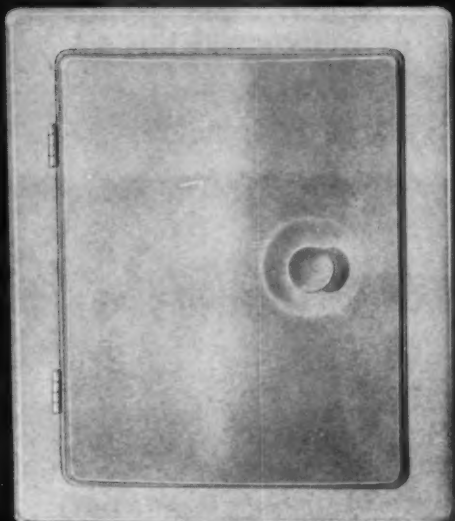
- Mar. 31 — Apr. 2 — Gas Appliance Manufacturer's Association, annual meeting. The Greenbrier, White Sulphur Springs, W.Va. H. Leigh Whitelaw, managing director, 60 E. 42nd St., New York 17.

### May

- May 4-7 — Air Conditioning and Refrigeration Institute, annual meeting. The Homestead, Hot Springs, Va. George S. Jones, Jr., managing director, 1346 Connecticut Ave., N.W., Washington 6, D.C.

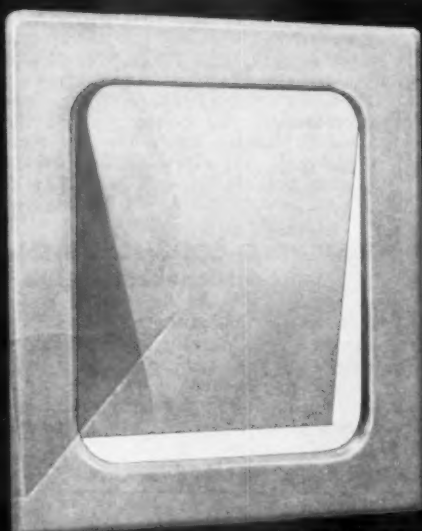
- May 8-10 — Sheet Metal and Air Conditioning Contractors' National Association, Inc., annual convention. Eden Roc Hotel, Miami Beach. Joseph D. Wilder, executive secretary, 170 Division St., Elgin, Ill.





Size 8" x 10" Only

**No. 6100 "SWING-OUT" DOOR.** This door is hinged at the side and blends well with any type of architecture. The knob is recessed to provide a smooth surface free from any garment-catching protrusions. It may also be used to good advantage as an access door to plumbing valves, as a small package receiver and in other applications of a similar nature.



Size 8" x 10" Only

**No. 6000 "PUSH-IN" DOOR.** The "Push-in" door is hinged at the top and equipped with spring action to hold the door firmly in a closed position when not in use. This type door is very popular with homeowners not only because of its smooth, snagfree surface, but also because it can be operated easily even when both hands are full of clothes.

## TWO NEW LAUNDRY CHUTE DOORS ARE EXCELLENT ADDITIONS TO THE H & C LINE!

All steel construction, sturdy and strong, designed to avoid all possibility of snagging clothes or garments . . . with frames that are deeply flanged for rigidity and strength and having generous margins to conceal rough plaster or irregularities in the wall around opening. Mounting holes in margin flange provide for easy attachment to furring or metal box. May also be neatly and quickly installed with our new No. 6 Stud Frame. Furnished in our "DECORATOR GRAY", a fine soft shade, baked on finish; white or polished chromium. See these excellent new items at your H&C Jobbers. If you do not have our new CATALOG "B" ask your Jobber for a copy . . . it's a reliable guide to the best in Registers, Grilles, and Diffusers for every type of domestic and commercial installation, as well as many fine accessories.



**HART & COOLEY  
MANUFACTURING CO.**

500 EAST EIGHTH ST., HOLLAND, MICHIGAN  
IN CANADA:  
HART & COOLEY MANUFACTURING CO., FORT ERIE, ONTARIO





Quality...

Service...



Complete line...

plus Sales Aids...

**EVERYTHING  
You Need  
to build  
Bigger Business!**

PROVED by 50 Years of Experience  
in the Home "Comfort-Conditioning"  
Field—

# Majestic Winter & Summer Air Conditioning Equipment



**GAS or OIL FURNACES**



**SUMMER AIR CONDITIONERS**



**COMPLETE ALL-YEAR MODELS**

## FORCED WARM AIR FURNACES

Majestic offers gas or oil-fired winter air conditioners in such a wide variety of models that you can easily install *system-engineered comfort* in any home, regardless of its size, style, or design! All the benefits of Majestic's years of research and engineering — greater efficiency, automatic operation, quietness, compactness, and economy — are the outstanding reasons why there has been such enthusiastic acceptance of this complete line. Models from 76,000 to 400,000 BTU output; in up, down, or horizontal flow designs.

## MATCHING COOLING UNITS

Majestic's matching self-contained or remote air conditioners are the perfect answer for economical, automatic all-season "comfort conditioning". Matching twin units or add-on installations are available in 2, 3, or 5 ton self-contained water-cooled models or remote air-cooled units. All are designed for simplified installation and years of dependable operation.

## "SINGLE SOURCE" PURCHASING

Majestic furnishes a complete line of heating equipment and accessories — furnace fittings, ducts, registers, and the like — giving the dealer the benefits of single source purchasing. Majestic's potent, hard-selling SALES AIDS (sales, service, and installation material of every type) are specially designed to help you profit. Investigate today the complete story of Majestic's full service and dealer co-operation plans.

The **Majestic** Co., Inc.  
394 Erie Street, Huntington, Indiana

WRITE TODAY for PROFIT-MAKING Details —

# EQUIPMENT DEVELOPMENTS

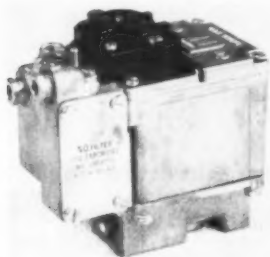
The latest information on manufacturers' developments is presented here with brief summaries of the applications of these products. For additional product information which is available, see this month's New Literature department

## Transition Bases for Ventilators

"SEAMLESS SPUN" small square-to-round transition bases for gravity ventilators and other air control equipment—*Penn Ventilator Co., Dept. AA, Goodman Ave., Philadelphia 40*. Spun aluminum bases are one piece, weatherproof and tapered to proper proportions, according to the manufacturer. Device also provides built-in condensation gutter. Removable top assembly provides access to curb-mounted air control equipment. Unit is designed to eliminate difficulties in installing small gravity ventilators. It is constructed of 16 ga metal, has streamlined bell-mounted entrance, the company reports.

## Gas Valve-Pilot Safety Control

MODEL V81 COMBINATION gas valve and automatic pilot safety control for residential central heating units—*Minneapolis-Honeywell Regulator Co., Dept. AA*,



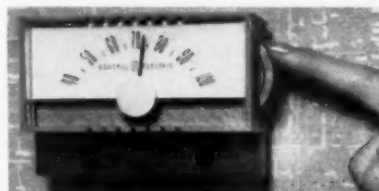
2726 Fourth Ave. S., Minneapolis 8, Minn. Gas valve portion is same as the company's V80 model. "Pilot-stat" safety control is attached in separate casting to upstream side of gas valve. Casting also contains pilot filter, "B" cock, pilot gas flow adjustment and 100 percent safety shutoff. All models have safe-light feature.

## Water Heater

"DIAMONDGLAS DELUXE" water heater in 20, 30, 40 and 50 gal capacities, with 46.2 gph recovery rate with 60 deg rise—*Mission Appliance Corp., Dept. AA, 12611 Crenshaw Blvd., Hawthorne, Calif.* Featured are: coppertone top and skirted base, 100 percent safety controls, white enamel jacket, redesigned burner with double row of gas ports, domed top to provide space for extra insulation above tank and "Diamond-glas" lining bonded to acid-etched tank with no interior surface welds.

## Heating-Cooling Thermostat

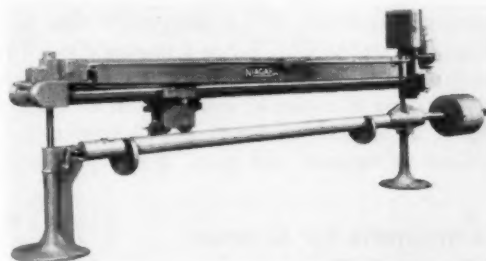
ROOM THERMOSTAT with contemporary straight-line styling designed to blend with modern design requirements—*General Electric Co., Appliance Control Dept., Dept. AA, Morrison, Ill.* Air conditioning attachment



can be added to control heating, cooling and blower units in residential air conditioning systems. Complete unit measures less than 2 in. thick, 3 in. high and slightly over 4 in. wide. Case is beige; matching air conditioning control is charcoal gray. Temperature readings are bold face, said to be readable across average room. Fingertip temperature adjusting dial is centered on right side. Unit will operate with all standard control systems as well as with the company's outdoor control system.

## Power Grooving Machines

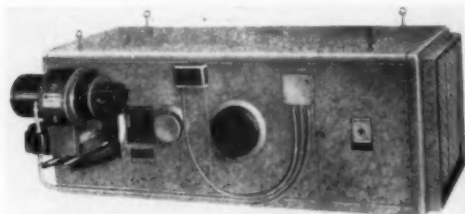
EIGHT MODELS of "Giant" power groovers with push-button controls for single or Pittsburgh lock seaming—*Niagara Machine & Tool Works, Dept. AA, 637-697 Northland Ave., Buffalo 11, N. Y.* Available with working lengths from 4 to 10 ft for handling mild



steel up to 10 ga, units feature pushbutton controls at center of machine. Power is supplied by direct-connected reversible gearhead motor with built-in brake to stop carriage quickly for rapid return stroke, the company states. Built-in zero speed switch protects motor and gears from overload by preventing reversal when carriage is still in motion. Limit switch reverses chain drive.

### Horizontal Furnaces

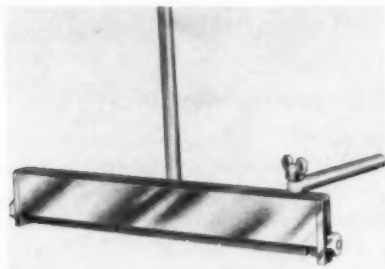
LINE OF HORIZONTAL oil-fired furnaces designed for installation where space is at a premium—*American-Standard Air Conditioning Div., Dept. AA, 40 W. 40th St., New York 18*. Units have 84,000, 95,000 and



112,000 Btu bonnet capacities. Featured are compactness and adaptability to left or right air discharge. Combustion chamber is high temperature steel. Optional equipment includes automatic float type humidifier, automatic day-night thermostat and two stage fuel unit.

### Hand Drive Cleat Folder

HAND FOLDER designed to turn drive cleat folds on sheet metal duct or fittings—*Duc-Pac, Inc., Dept. AA, Baldwin St., East Longmeadow, Mass.* Constructed of



cadmium plated steel, unit is designed to make  $\frac{1}{4}$  or  $\frac{1}{2}$  in. folds on  $2\frac{1}{4}$ ,  $3\frac{1}{4}$ , 5, 6 or 8 in. duct sizes. When not in use, handles can be turned flush with body for easy carrying in pocket or tool kit. Tool is placed on edge to be turned, and handle is pulled down. Folds need not be flattened with pliers, the company states.

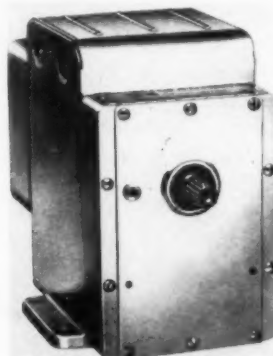
### Electrostatic Air Cleaner

"MULTIPLE SECTION" electrostatic air cleaner with decreased dimensions and face area, yet more capacity than previous models—*Radex Corp., Dept. AA, 2076 Elston Ave., Chicago 14*. Unit is made in multiples of  $5\frac{1}{2}$  in., from  $5\frac{1}{2} \times 9$  in. up to  $28 \times 144$  in., depending on duct size available. Collector plates can be removed for cleaning in space of less than 24 in. Depth is 18 in. No water or sewer connections are

necessary. Mechanical filters are connected in multiples. Units can be installed horizontally, vertically or at an angle.

### Motor Operator for Damper Control

OIL-SUBMERGED, spring return, proportional type electric motor operator designed to control dampers in heating, cooling and ventilating systems—*Barber-Colman Co., Dept. AA, 1300 Rock St., Rockford, Ill.* Motor features specially designed gear train and drive completely submerged in oil and sealed in die-cast



case. It may be mounted in any position. Output shaft is power operated in both directions to operate damper as required when power is on and maintain this position with internal holding circuit. Enclosed spring return drives damper to normal position when power is interrupted. Unit is available in 24, 115, 208 and 230-v.

### Weld Crater Eliminator

CRATER ELIMINATOR control attachment for "Aircospot" gun in arc-spot welding light gage metals—*Air Reduction Sales Co., Div., Air Reduction Co., Inc., Dept. AA, 150 E. 42nd St., New York 17*. Unit is designed to regulate automatically the cooling rate of arc-spot welds. When trigger is released and welding action stops, arc does not end abruptly, but drops to lower intensity before it extinguishes, and weld cools more slowly, minimizing weld cracking and craters. Spatter trap prevents particles of molten metal from entering nozzle.

### Water Heater Limit Switch

HIGH TEMPERATURE limit shutoff switch for water heaters—*Grayson Controls Div., Robertshaw-Fulton Controls Co., Dept. AA, Long Beach, Calif.* Switch automatically shuts off flow of gas to main burner and pilot when water temperature in the heater tank becomes excessive or unsafe. It operates by breaking the electrical current between thermocouple and magnetic coil, which causes pilot valve to shut off all gas.





## Strong, secure seams easy to form with USS Galvanized Steel Sheets

**I**NTRICATE AND DIFFICULT ductwork installations are easier to make, and the finished job is strong and good-looking, when you use USS Galvanized Steel Sheets.

To make sharp angle bends and tight seams you need a galvanized sheet which is strong and sturdy, yet ductile enough to form whatever shape is required. Such a sheet is USS Galvanized Steel. You can bend, cut, stamp, weld, solder, shape, lock-seam, roll or form a USS Galvanized Steel Sheet . . . and the tightly adhering coating

of zinc will not chip, flake or crack. And because USS Galvanized Steel Sheets make such a good appearance, your customers will be better satisfied with their new heating or air-conditioning system.

For more information about these superior quality USS Galvanized Steel Sheets, get in touch with the nearest Sales Office of United States Steel. Your local steel distributor can give you fast delivery of USS Galvanized Steel Sheets. Let his stock serve as your inventory.



## USS GALVANIZED STEEL SHEETS

UNITED STATES STEEL CORPORATION, PITTSBURGH • COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO  
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.  
UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS, COAST-TO-COAST  
UNITED STATES STEEL EXPORT COMPANY, NEW YORK



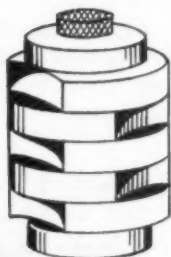
UNITED STATES STEEL

# Recommend FEDERAL FILTERS for Bigger Profits.. Happier Customers

**Provides  
uninterrupted  
trouble-free  
service!**



The Federal's filter pockets trap contaminating impurities found in fuel oil and prevent clogging of burner nozzles. This means trouble-free furnace operation and the end of expensive service call-backs. One model handles all filtering jobs, whether pressure or gravity type. Can be mounted in practically any position . . . in a jiffy! Suggest the Federal Filter for faster sales — bigger profits.



## **Bonus Profits from CARTRIDGES!**

This unique 16-pocket filter element is in great demand and will bring countless repeat orders for extra profit! Easy to install.

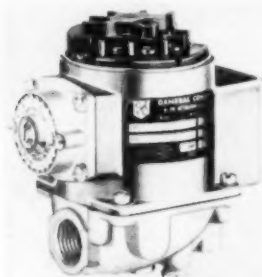
**NORWOOD PRODUCTS CO. • LUVERNE, MINN.**

A division of A. R. WOOD MFG. CO., Luverne, Minn.

## **equipment developments** (Continued)

### **Main Line Gas Valves**

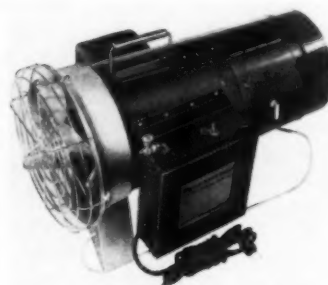
MODEL K-3H hydranoid main line electric gas valve with "Dial-a-Flo" step opening feature—General Controls Co., Dept. AA, 801 Allen Ave., Glendale 1, Calif. Valve performance



can be set to exact requirements by setting dial, the company states. Sealed operator valve contains silicone fluid to maintain uniform operating characteristics under all weather conditions. Valve opens to pre-set start position, and continues to open slowly until desired burner operation is established.

### **Blower Type Heaters**

MODEL 1710 BLOWER TYPE portable heaters for temporary heating, with adjustable heating capacity from 10,-



000 to 120,000 Btuh — Insto-Gas Corp., Dept. AA, 998 E. Woodbridge Ave., Detroit 7. Unit has automatic continuous ignition; one switch starts the heater. Gas and ignition shut off and restart when power or flame are interrupted. Unit, which operates on LP gas, is 21¾ in. long, 17¾ in. wide and 13¾ in. high. Automatic lighting is featured.

***One Call...That's All!***

**MONCRIEF**

***gives you  
Everything you need  
for Better Heating-  
and Cooling-  
Installations!***

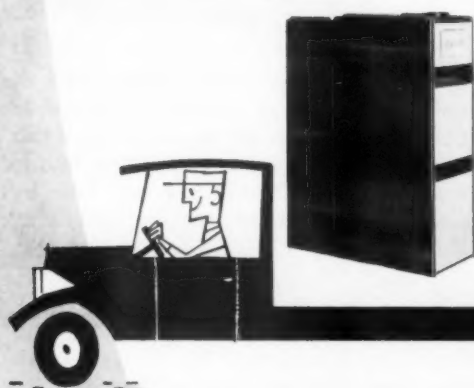
● Whatever you need — Gas, Oil or Coal Furnaces (Basement, Hiboy, Counterflow or Horizontal); Air Conditioning Units; Gas Conversion Burners or Oil Conversion Burners; Gas Unit Heaters; Furnace Pipe and Fittings; or Prefab' Plenum Chambers — there's nothing like being able to place your order with one phone call, and then expect speedy service.

That's the advantage you enjoy, when you deal with your Moncrief Wholesaler!

And when you order Moncrief, you know that whatever you order will be built right, as well as priced right, because it is manufactured by heating experts with a background of more than 60 years of experience.

Today, your dollars are buying bigger at your Moncrief Wholesaler's, because Moncrief has been able to overcome rising costs through constant modernization of both manufacturing plants and production methods.

So, if you want the excellence of years ahead design, heavy construction and service-free operation, all at exceptionally competitive prices — and if you want the convenience of being able to order whatever you need, whenever you need it, without the penalty of a heavy inventory — call your Moncrief Wholesaler, today!



Winter Air  
Conditioner  
with enameled  
Return Air  
Cabinet  
(an accessory).  
A modern  
Basement-  
Type Unit!



Oil Winter Air  
Conditioner.  
Burner and  
Refractory  
Firebox are  
installed and  
all interior  
wiring is done  
at the factory!



Gas  
Counterflow  
Unit with  
front Panels  
removed.  
Connection of  
the gas line,  
electricity  
and ducts  
completes the  
installation!

### New MONCRIEF FURNACES

**YEARS AHEAD in Design . . . SENSATIONALLY LOW in Price!**

Winter Air Conditioners and Counterflow Units . . .  
Gas Fired: 75,000, 100,000, 125,000 and 150,000 Btu . . .  
Oil Fired: 78,400 and 112,000 Btu! Heavily Constructed!  
Completely Assembled and Wired . . . Oil as well as Gas!  
Approved for Close Clearances! Adaptable for Cooling!  
Advanced in Styling! Surprisingly Low in Price!

**Pick the Type  
that suits  
you Best!**



Gas or Oil  
Fired Winter  
A. C. Units



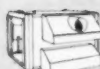
Gas or Oil  
Fired Utility  
and Counter-  
flow Winter  
A. C. Units



Gas or Oil  
Fired  
Gravity  
Furnaces



Horizontal  
Furnaces  
4 Gas Sizes  
4 Oil Sizes



Gas Duct  
Furnaces  
4 Sizes



Gas Fired  
Unit Heaters



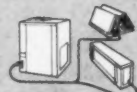
Gas  
Conversion  
Burners



2, 3 or 5 H.P.  
Air or Water  
Cooled Gas  
or Oil Fired  
Year 'Round  
A. C. Units



3 or 5 Ton  
Water  
Cooled  
Summer  
A. C. Units



2, 3 or 5 H.P. Air  
Cooled Summer  
A. C. Units with  
choice of "V"  
(Upflow) or "Flat"  
(Horizontal Flow)  
Cooling Coils

**THE HENRY FURNACE COMPANY • Medina, Ohio**

HEATING AND AIR CONDITIONING UNITS

**MONCRIEF**

FURNACE PIPE AND FITTINGS

**GUARANTEED**

... not for 5 years, not for 10 years  
... not for 15 or 20 years, but

**UNCONDITIONALLY  
GUARANTEED**



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Zeph-Air is the gas furnace with the cast-iron heart. The entire heating element is unconditionally guaranteed — for LIFE!

A limited number of exclusive franchises protect our dealers — and we assist them with many kinds of dealer helps.

Write today to see if a franchise is open for you. We'll give you the details you need and want — no obligation, of course. We'll also be pleased to furnish complete information on our air conditioning units for use with our heating equipment.

**XXTH CENTURY**

Since 1894

96 IRA AVE.

**HEATING & VENTILATING CO.**

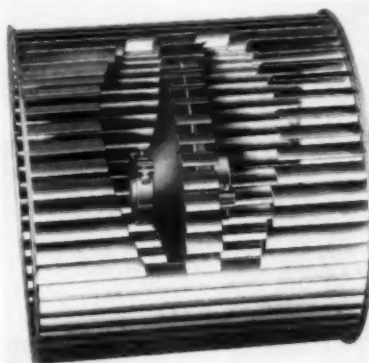
AKRON, OHIO

## equipment developments

(Continued)

### Blower Wheel Hub

LARGE HUB for blower wheels, designed for greater stability—*Lau Blower Co., Dept. AA, 2005 Home Ave., Dayton, O.* Unit is available on all blower wheels from 9 through 30 in. diameter. Hub section is made



from single sheet of metal extruded under die pressure. Two sections are joined to make complete hub. Curved clamp draws hub tightly to shaft. Hub diameters are 2 to 4½ in.; units are lightweight, reducing total weight of blower wheel, and have increased spread increasing shaft support line area for more stability.

### Roll Forming Machine for Corrugating

ROLL FORMING MACHINE for corrugating galvanized steel, aluminized steel, plain and embossed aluminum—*Dahlstrom Machine Works, Inc., Dept. AA, 4227 W. Belmont Ave., Chicago 41.* Unit is said to handle 20 through 28 ga metal; other gage ranges are custom made. Roller die tooling is available for ½ or ⅞ in. depth. Operating speed is 150 fpm. All-welded construction is featured; roll shafts are mounted on anti-friction bearings; only vertical adjustment is required for gage range. Setup is available as individual unit, with complete decoiling and shearing line conveying cut lengths into forming machines, or as complete roll forming line utilizing coil stock and cutting to length.

### Transformer Type Arc Welder

"TRIPLE RATED" a-c transformer type arc welder for operation on single phase, 60-cycle, 230-v input—*Hobart Bros. Co., Dept. AA, Canal Lock Sq., Troy 1, O.* Output at 30-v is 295 amp. Transformer has magnetic control. Five main steps of coarse adjustment are provided for use in conventional a-c welding and certain inert gas welding operations; four additional steps are provided for other inert gas welding. Unit is also suitable for conventional welding if E-6013



## equipment developments

(Continued)

type electrodes are used, and only for downhand welding. Capacitors for power factor correction are optional. Unit is  $32\frac{1}{2} \times 21 \times 21$  in., weighs 245 lb.

### Portable Tool Regulator

"PORTO PAC" VOLTAGE REGULATOR which plugs into 110-v, 60-cycle a-c circuit and mounts three 20-amp outlets into which portable tools can be plugged—Aesco Products, Dept. AA, P.O. Box 587, Ypsilanti, Mich. Meter on housing face reads output voltage. A 6-step Ohmite control is positioned to compensate for voltage drop, to maximum of 50-v so portable tools can operate at rated power. Assembly is in  $8 \times 8$  in. housing, weighing 20 lb. A  $3\frac{1}{2}$  ft. three-wire extension cord and plug are provided on input side. Output connectors are said to be standard twist lock design.

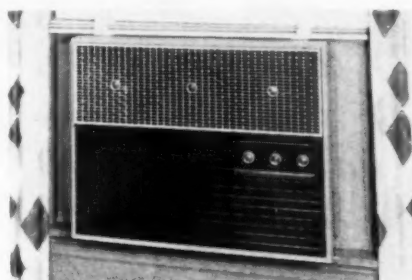
### Glass Lined Water Heaters

"DIAMONDGLAS SUPREME" gas-fired water heaters in 30, 40, 50, 75, and 100 gal sizes with exposed or concealed controls and recovery rates of 58.8 to 70 gph with 60 deg rise—Mission Appliance Corp., Dept. AA, 12611 Crenshaw Blvd., Hawthorne, Calif. All controls

are concealed in 30 and 40 gal models, which employ star burners. Coppertone or white enamel finishes are available; all have chrome tops and skirts. Thermostat controls temperature and safety shutoff. Glass lining is gaged for uniform thickness and bonded to acid-etched tank with no interior surface welds.

### Vertical Room Cooling Units

"IMPERIAL" VERTICAL 1 hp room cooling unit designed to blend with modern room decor—Frigidaire Div., General Motors Corp., Dept. AA, 300 Taylor St.,



Dayton 1, O. Unit can be installed at the top or bottom of double hung windows, in casement windows or through wall. Glass fiber filters are replaceable. Thermostatic controls are employed.

COUNT 'EM!

10

Plus BENEFITS WITH GENERAL FILTERS

We Compared ALL Leading Fuel Oil Filters FEATURE for FEATURE

- ▶ All Iron and Steel Construction
- ▶ Corrosion-Proofed Inside and Out
- ▶ Air Vents On Both Inlet and Outlet
- ▶ Choice of Inlet and Outlet Sizes
- ▶ Center Bolt Torque Resistance Over 300 In-Lbs.
- ▶ Non-Swelling, Leakproof Buna-N Gaskets
- ▶ Depth-Type Wool Felt Element
- ▶ Patented Lint Removal
- ▶ Moisture and Condensation Removal
- ▶ Large Sump Area

Only  
GENERAL  
HAS ALL  
10  
KEY  
FEATURES!

**COMPARE! HERE ARE THE FACTS ABOUT FUEL OIL FILTERS!**  
Comparison of GENERAL FUEL OIL FILTERS with other leading makes

KEY FEATURES	GENERAL FUEL OIL FILTERS (1A-25A & 25A-100A)	FILTER "A"	FILTER "B"	FILTER "C"	FILTER "D"	FILTER "E"	FILTER "F"	FILTER "G"
ALL IRON AND STEEL CONSTRUCTION No rust or scale buildup. Rusting in steel case is never met.	YES	NO	NO	YES	NO	NO	NO	NO
CORROSION-PROOFED INSIDE AND OUTSIDE Rust inhibitors are added. Rust on both inside and outside surfaces of steel case disappears in water.	YES	NO	YES	NO	NO	NO	NO	NO
AIR VENTS ON BOTH INLET AND OUTLET Eliminates breathing of lines without disconnection.	YES	NO	NO	NO	YES	NO	NO	NO
CHOICE OF INLET AND OUTLET SIZES 1/2", 3/4", 1", 1 1/2", 2" or 2 1/2" diameters.	YES	NO	NO	YES	NO	NO	NO	NO
CENTER BOLT TORQUE RESISTANCE Over 300 in-lbs. (Standard 100 in-lbs.)	YES	YES	NO	YES	NO	YES	NO	NO
NON-SWELLING, LEAKPROOF GASKETS Buna-N gaskets are of best quality. No swelling. No leaks.	YES	NO	NO	NO	NO	NO	NO	NO
DEPTH-TYPE WOOL FELT ELEMENT Removes dirt and debris. No clogging. No lint removal.	YES	YES	NO	NO	YES	NO	NO	NO
PATENTED LINT REMOVAL Lint is removed by steel ball pressing. No lint removal.	YES	NO	NO	NO	NO	NO	NO	NO
MOISTURE AND CONDENSATION REMOVAL Moisture is removed by steel ball pressing. No moisture removal.	YES	YES	NO	NO	YES	YES	NO	NO
GRAND LUMP AREA The largest and heaviest large quantity of water.	YES	YES	NO	NO	YES	YES	NO	NO
<b>TOTAL KEY FEATURES</b>	<b>10</b>	<b>4</b>	<b>1</b>	<b>3</b>	<b>4</b>	<b>2</b>	<b>0</b>	<b>0</b>

GENERAL FUEL OIL FILTERS OFFER MORE KEY FEATURES  
MORE BURNER PROTECTION MORE CUSTOMER SATISFACTION!



**MORE OIL BURNER PROTECTION...  
MORE SATISFIED CUSTOMERS!  
GENERAL FILTERS, INC.**

IN CANADA: Canadian General Filters, Ltd., 39 Grosvenor Blvd., Scarborough, Ontario

**SELL THESE ITEMS, TOO!**  
CLEAN RIGHT Soot Remover destroys 1/2" soot layer in 2-5 minutes. Can reduce heating costs 25%.

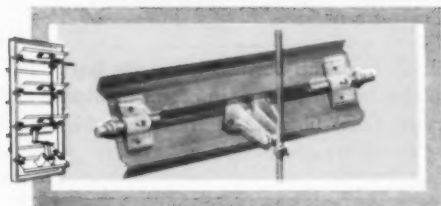
**GENERAL HUMIDIFIER**  
Water Flow Regulator obsoletes floats... nothing like it!



# DURO

# DYNE

## "NEVA-BIND" BLADE KIT



*This positive action, precision-built multi-blade damper hardware virtually eliminates all damper binding!*

Now, without the need for skilled specially trained personnel your shop can assemble fine precision-engineered dampers — at considerably lowered costs.

The new Duro Blade Kit with the NEVA-BIND boasts 4-way self-adjustability to prevent binding, and reduce assembly time drastically.

You need no longer worry about inaccuracies in construction or assembly which result in flexed connecting rods — the main cause of binding. For the "Neva-Bind" Blade Kit allows the connecting rod to remain absolutely straight regardless of inaccurate construction or assembly. Dampers can therefore be assembled with little care, and no costly alignment afterward!

You can get full detailed information on this new Duro-Dyne development by calling your Duro-Dyne distributor today. Or — write for catalog and the name of your near-by local supplier.

*The greatest name in sheet metal specialties*



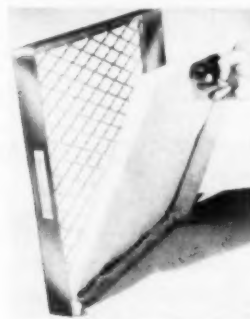
**DURO-DYNE CORP., 800 Third Avenue, New Hyde Park, N. Y.**

CANADIAN DISTRIBUTORS: Douglas Engineering Company, Ltd., Montreal and Toronto  
E. H. Price, Ltd., Winnipeg and Vancouver

### equipment developments (Continued)

#### Air Filter

AIR FILTER utilizing replaceable media and cadmium plated permanent metal frame with large meshed screen on the downstream side — *Arco Mfg. Co., 542 W. 55th St., New York 19, N. Y.* Media is made of synthetic fibers and is held in place by a rectangular cadmium-plated re-



tainer spring that fits within the filter frame. In air filtering systems where large banks of filters are used, it is unnecessary to remove the filter frame, according to the manufacturer. The retaining spring is lifted out and the old media replaced. Filter frames and media are available in all standard sizes.

#### Blow Pipe Elbows

BLOW PIPE ELBOWS of 5 and 7 piece, air-tight are welded construction in 14, 16, and 18 ga black iron or galvanized steel, from 3 to 20 in. — *Wer-Coy Fabrication Co., Dept. AA, 2232 Beniteau St., Detroit 14.* Units are in all standard angles from 15 to 90 deg. Throat radii are from 2 in. to 1½ times the diameter of the pipe. Roundness, radius and angle tolerances are guaranteed to be 1/16 in. or less.

#### Wall Furnace

MODEL CF65 counterflow forced air recessed wall furnace rated at 65,000 Btu — *Holly-General Co., Div. of Siegler Corp., Dept. AA, P. O. Box 2098-D, Pasadena, Calif.* Unit can be recessed between studs or set



# Quickdraft...

the world's most  
efficient power  
exhauster



...for industry



...for institutions



...for residences



★ NO MOTORS, FANS OR BEARINGS IN EXHAUST LINE

★ NEEDS NO STACKS

★ ACID RESISTING VITREOUS ENAMEL FINISH

FOR INDUSTRY, Quickdraft excels in venting paint booths . . . abrasives . . . corrosive gases . . . noxious fumes . . . high temperatures and moisture. Its blower operates in clean or outside air. It eliminates down-time for cleaning and replacing fan blades. It improves industrial venting and reduces maintenance costs!

FOR INSTITUTIONAL AND COMMERCIAL BUILDINGS, Quickdraft efficiently vents heating plants, water heaters and incinerators at roof level. It saves the cost of building unsightly tall stacks.

FOR RESIDENCES, Quickdraft makes low, cold and erratic chimneys function. On and off with the fire, Quickdraft maintains constant draft required for efficient and economical combustion of all fuels. It eliminates pulsating or chattering, puffing, smoking and sooting.

SEND FOR QUICKDRAFT ENGINEERING DATA ON YOUR VENTING OR HEATING APPLICATIONS . . . TODAY.

N-623-QD

Patent Num. 2,722,372.  
Other Patents Pending.



## Quickdraft CORPORATION

P. O. Box 87-D, Dueber-Hampden  
Bldg., Canton 1, Ohio

### IMPORTANT NOTICE

In addition to standard acid resisting vitreous enamel finish, all Quickdraft units are available in No. 316 Stainless Steel or in rigid plastics such as P.V.C. Plastics and fiberglass coatings are also available for withstanding highly corrosive gases. With static pressures up to 12-inches, Quickdraft is ideal for materials handling applications.

# NAHB

1957  
HOME OF THE  
YEAR



CONTAINS

## SONOCO SONOAIRDUCT® FIBRE DUCT



Vapor barrier is laid and long-length, lightweight SONOAIRDUCT is positioned.



Completed system prior to final pouring.

In July 1955, the NAHB Research Institute undertook to build a better house at lower cost. The result is their 1957 Research House in which SONOCO SONOAIRDUCT Fibre Duct was used as one of the important time, labor and money saving products. This house has a radial, slab-floor warm air heating and air conditioning system with long-length SONOAIRDUCT as supply lines. Its use is typical of the wide acceptance by architects, builders and contractors everywhere.

Sonoco SONOAIRDUCT Fibre Duct is aluminum foil lined. 23 sizes—2" to 36" I.D., up to 50' long. Can be sawed to exact lengths on the job. Meets and exceeds all F.H.A. criteria and test requirements for products in this category. Free installation manual available upon request. See our catalog in Sweets.



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14 SOUTH PARK STREET

AKRON, IND. • LONGVIEW, TEXAS • BRANTFORD, ONT. • MEXICO, D. F.

932

### equipment developments

(Continued)

in corner as free-standing unit. Features are large counterflow blower; two-speed gas valve and blower operation; triple safety limit controls; air intakes at both floor and ceiling.

### Gas Water Heaters

"SUPERSPEED" SERIES of automatic gas water heaters with copper-nickel alloy tanks — *Ruud Mfg. Co., Dept. A.A., 2025 Factory St., Kalamazoo, Mich.* Model CS 24-25 has 20 gal tank, 30,000 Btuh input; CS 30-30 has 25 gal tank, 35,750 input; CS 40-40 has 35 gal tank, 47,500 input; CST 60-60 has 50 gal tank, 71,500 Btuh input. Built-in two-temperature feature which provides, simultaneously, 180 deg sanitizing hot water and 125 water for general use, is available.

### Turbine Ventilator

MODEL T TURBINE ventilator in variety of metals and sizes — *Triangle Engineering Co., Dept. A.A., 1301 Ashland, Houston 8, Tex.* Bearing

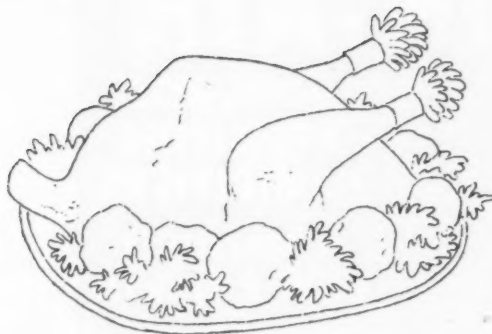


design is engineered to minimize number of moving parts. Ventilators are available in 6 to 48 in. sizes in galvanized iron, aluminum, copper and stainless steel.

### Duct Size Calculator

SLIDE TYPE air duct size calculator for sizing by velocity reduction or equal pressure loss methods — *Paul S. Morton Engineering Service, Dept.*





## let's talk turkey about your business

It's a good time — as the year comes to an end — to take stock of your business operation. And especially, your new business operation. In these days of stiffer competition and rising overhead, the costs of finding new business have gone up steadily. That's why it's more important than ever to concentrate your efforts where you know there's

business to be had. And that's why you need Dodge Reports! They tell you in advance what jobs are coming up in the construction field that will interest you . . . and whom to contact about getting them.

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TO: **DODGE REPORTS**, DEPT. 169, 119 WEST 40th STREET, NEW YORK 18, N. Y.

Yes! I'd like to see how to get more business by knowing in advance who's going to build what, when, where.

I want to know whom to contact and when to submit bids.

I'd like to see some Dodge Reports and I'd like a copy of your booklet that tells how to use this accurate, daily, up-to-the-minute construction news service.

I understand that I can pick just the area and type of construction activity that interests me. Also, that I won't have to wade through piles of extraneous data to find the information I need.

I'm interested in General Building ☐  
House Construction ☐  
Engineering (Heavy Construction) ☐

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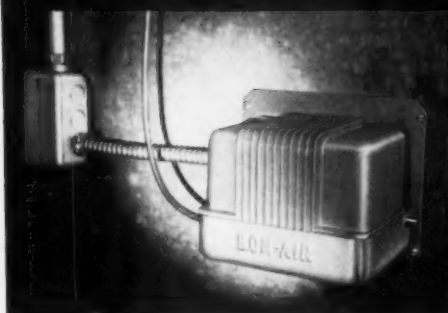
ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

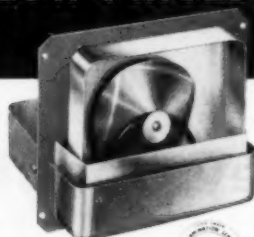


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**Flu-Bonnet**

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- Stops Backdraft **AND** Excess Draft
- Keeps heat inside **AND** Saves fuel



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*(Amazing pressure-balancing  
design patented)*

What the well-dressed house is wearing

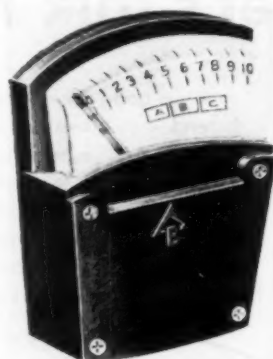
## equipment developments

(Continued)

AA, 5131 Meadowlark Lane, Kalamazoo, Mich. Cf. velocities, friction losses, weights of ducts and equivalent round and rectangular ducts can be determined. Unit supplements similar calculators for Btu, area and volume, area and crackage, electrical heating and withholding taxes.

### Heating System Balancer

"FLORET" pocket-size instrument designed for adjusting air flow in residential warm air heating systems — Bacharach Industrial Instrument Co., Dept. AA, 200 N. Braddock Ave.,



Pittsburgh 8. Held against register, unit indicates air flow and tells whether it is within proper range. Instrument permits balancing air flow from all registers, setting of blower speed for CAC and adjusting dampers for temperature balance.

### Window Air Conditioners

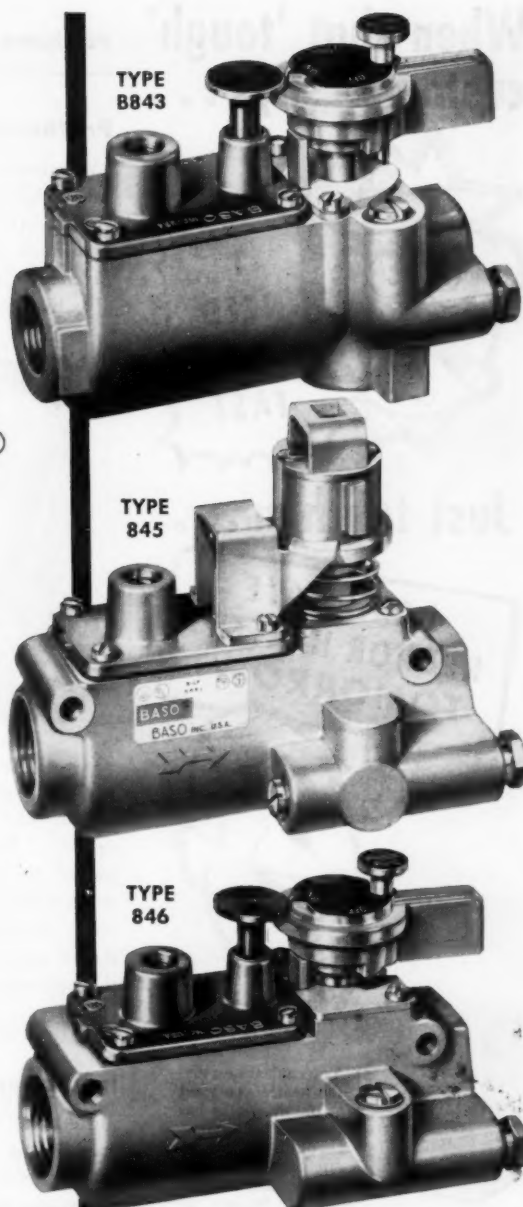
TWENTY-NINE models of window air conditioning units including 12 reverse cycle heat pumps—Fedders-Quiggan Corp., Dept. AA, 57 Tonawanda St., Buffalo 7, N. Y. Featured are 1½ hp unit which operates on standard 115-v house current, and heat pump models with thermostat located on outside coil to sense coil frosting and turn the unit from heating back to cooling. Two heat pump units also have two-stage supplementary strip heating. These units are 1 and 1½ hp models.

# THREE NEW BASO® SPACE SAVERS

These three Baso Automatic Pilot valves take care of space heaters, room heaters, floor furnaces, and other appliances with  $\frac{3}{8}$ " or  $\frac{1}{2}$ " manifolds.

They fit into a space only a fraction more than 4" long. Handle, lock pin, and pilot adjustment screw are placed at the top of the control for easy access and simplified installation. Lock pin in handle prevents accidental turning off.

Put one of these new Baso thermoelectric valves on your new design.



Model	Inlet and Outlet	Capacity Btu./hr. at 1" Pressure Drop		
		Mfd. Gas	Nat. Gas	LP Gas
B843	$\frac{3}{8}$ " F.P.T.	60,000	88,800	188,500
845	$\frac{1}{2}$ " F.P.T.	110,000	162,800	345,000
846	$\frac{1}{2}$ " F.P.T.	110,000	162,800	345,000

For more about these new Valves, write

# BASO INC.

(Formerly Milwaukee Gas Specialty Company)

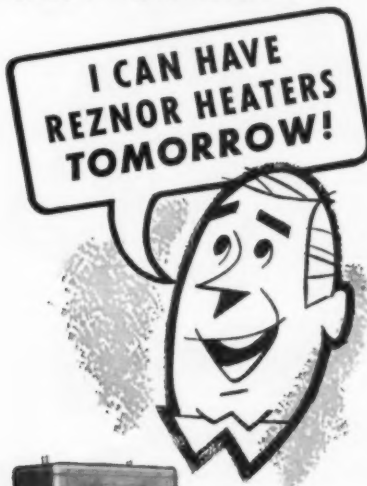
MILWAUKEE 1,  
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# When that 'tough' customer says...



## Just tell him...



You can't always find the heater you need at the drop of a hat... but you'll come through far more often on Reznor than on any other gas unit heater. Nearly as

many Reznor heaters are sold as all other makes combined. That steady demand means that it pays Reznor wholesalers to maintain a good stock of all the popular sizes. On nine jobs out of ten you'll be able to pick up the telephone and find the Reznor heaters you need, ready and waiting for you right in your own town. Fast delivery is the turning point on too many sales. You can't afford to delay when that tough customer hollers "right now!" You need a heater you can get in a hurry. And that's just one of the many reasons why profit-wise dealers prefer to sell and install Reznor gas unit heaters. For the complete story, just give your nearby Reznor distributor a call.



Reznor Manufacturing Co., 6 Union St., Mercer, Pa.

### equipment developments

(Continued)

#### Prefabricated Chimney

"METALBESTOS" all-fuel, prefabricated chimney for use with heating systems, residential incinerators, etc. — *William Wallace Co., Dept. AA, Belmont, Calif.* Unit has double walls of galvanized steel (outer) and stain-



less steel (inner) with mineral fiber packed between. Galvanized steel housing can be painted without using primers. Venturi principle is employed to provide positive chimney draft. Special coupling joins sections with one-eighth turn. Shadow line ridges support housing and simulate the appearance of brick and mortar chimney.

#### Insulation Adhesives

MODELS SC 4815 insulation adhesive for bonding insulation to heating and cooling ducts and SC4851 for sealing lap seams on duct covering — *St. Clair Rubber Co., Dept. AA, 440 E. Jefferson, Detroit 26, Mich.* Adhesives are designed to produce neater work and substantially reduce labor cost, according to the manufacturer.

#### Complete Cooling Systems

REMOTE AND self-contained cooling units, prefabricated duct packages and adjustable ceiling diffusers — *Warren Webster & Co., Dept. AA, 1664 Federal St., Camden 5, N. J.* Model SC-2 self-contained, air cooled model has 2 hp compressor, 1400 cfm condenser, produces total of 23,-

600 Btuh. RC series remote models are in 2, 3, and 5 hp units, air cooled. Evaporator section can be located anywhere. Cooling coils are "A" shaped or vertical; condensers are rated at 1800, 2300 and 3500 cfm; capacities run 24,000, 33,000 and 58,000 Btuh total. Duct work is 3/4 in. rigid glass fiber insulation with aluminum foil vapor barrier bonded to surface. Ceiling diffusers are adjustable for two, three or four-way diffusion, and have volume control dampers.

#### Gravity Furnaces

MODEL GC GAS-FIRED gravity furnaces ranging from 90,000 to 145,000 Btu input — *American-Standard Air Conditioning Div., Dept. AA, 40 W. 40th St., New York 18.* Designed



for replacement work where prospect cannot afford new forced air systems, the unit has single port upshot burner, full metal bottom pan, 1/2 in. thick foil-faced glass fiber insulation on all heated areas. Units are designed to occupy minimum floor space in the residence, the company states.

#### Centrifugal Exhausters

"DOMEX" SERIES RB and QB high-capacity V-belt drive centrifugal roof exhausters — *Penn Ventilator Co., Dept. AA, Goodman Ave., Philadelphia 40.* Units are housed in streamlined spun aluminum casings. Deep, one-piece spun throat is designed to handle higher air volumes. Fan wheels up to 36 in. in diameter are available. Factory-installed electrical





## Bethcon coating stays tight in the toughest forming jobs

You can make snap locks, Pittsburgh lock seams or some special seam of your own without damaging the zinc coating on a Bethcon sheet. That's because Bethcon is galvanized by a continuous process which bonds the zinc to the base metal much more tightly than conventional methods.

This same process also distributes the zinc evenly over the sheet, producing a finished sheet of uniform thickness and appearance. It also eliminates the bead usually found on the drip ends of hot-dipped sheets.

Another advantage of the Bethcon continuous galvanizing process is the remarkable combination of strength and ductility in the sheet. That's because the basic steel receives a special annealing in the continuous line. You'll find a

Bethcon sheet neither too soft nor too stiff, but just right for easy workability and a sturdy end-product.

You can specify Bethcon in any gage from 13 on up, in plain steel or copper-bearing (Beth-Cu-Loy) for extra corrosion-resistance. If you have not yet worked with Bethcon, you might like to talk with someone who has. Or perhaps you'd prefer to discuss it with one of our own men. Either way, you'll get prompt attention by getting in touch with our nearest district sales office.

You really ought to try Bethcon. Why not call us now?

**BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.**

On the Pacific Coast Bethlehem products are sold by  
Bethlehem Pacific Coast Steel Corporation  
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Describes the new CENTRIFLO Turbine Ventilator, furnished in all aluminum or all galvanized . . . the outstanding value in turbine type wind driven ventilators available today . . . careful engineering of each component part provides the ultimate in efficiency, performance and quality. The first turbine ventilator to suspend the rotating units and bearings in rubber, providing maximum elimination of noise and vibration. Made in sizes from 14" to and including 30" . . . complete specifications in this new folder. Your copy is waiting for you. Write for it today.

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#### STATIONARY VENTILATORS

#### ROTOFLO TURBINE VENTILATORS

#### RECTANGULAR STATIONARY VENTILATORS

**GREENHECK**

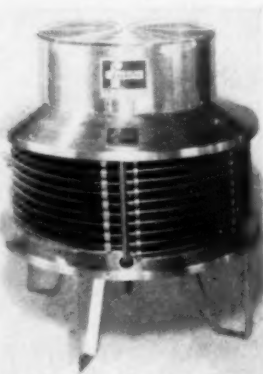
FAN & VENTILATOR CORP.  
SCHOFIELD • WISCONSIN

### equipment developments (Continued)

conduit is designed to facilitate field installing, the company states.

#### Air Cooled Condenser

"FANDAIRE" AIR COOLED condenser with circular sloped tube designed to permit full counter flow and tube drainage — *F5 Air Conditioning Corp., Dept. AA, Tulsa, Okla.* Cool



air first contacts the coolest gas at periphery of coils, to provide high heat transfer rate, the company states. Each layer of tubes is made from one continuous single tube length; there is constant slope from inlet to outlet end. Fins are thicker at base than at outer edge, and are spaced 8 per in. Vertical air discharge is featured. Units are in 2, 3, 5, 7½, 10 and 15 tons and higher capacities.

#### Aluminum Cleaner

"RAP's" aluminum cleaning compound designed to clean, remove streaks and spots, and leave satin finish and protective coating — *Randolph-Page, Inc., Dept. AA, 175 Fifth Ave., New York 10.* Compound contains finely ground aluminum. It may also be used on other metals, according to the company.

#### Mixed Flow Blower Unit

"RADIAX" DIRECT DRIVE blower in four models covering flow range from 500 to 1500 cfm — *Air Im-*

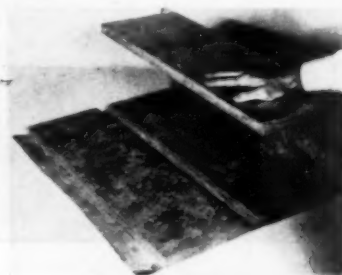
*pellor Div., Torrington Mfg. Co., Dept. AA, Torrington, Conn.* Units are supported at center of gravity;



loading is equal on all motor bearings. Motor and blower are resiliently mounted. Featured is a non-overloading power characteristic.

#### Glass Fiber Duct Material

"FIBERGLAS" DUCT MATERIALS for heating and cooling systems — *Owens-Corning Fiberglas Corp., Dept. AA, 1930 Nicholas Bldg., Toledo 1,*



*O.* Duct materials, available with aluminum foil vapor barrier, are designed for fast handling and assembly and convenience in stocking and shipping.

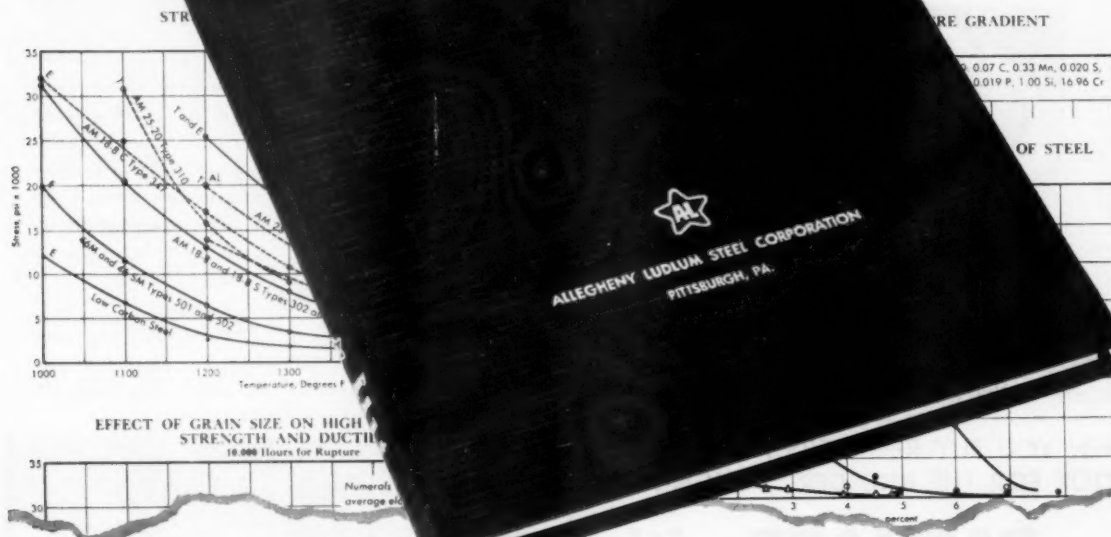
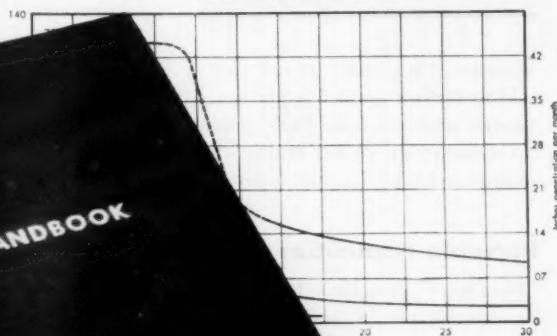
#### Cooling Line

LINE OF COOLING units including 15 window models, a portable electric dehumidifier and four self-contained and remote central models — *Whirlpool Corp., Dept. AA, St. Joseph, Mich.* Room units are: "Imperial" series of 1, 1½ and 2 hp units, for 27-40 in. windows; "Custom" models for upper or lower section of 27-40 in. windows, in 1, 1½ and 2 hp models; and "Deluxe" units in 1 and 1½ hp sizes to fit up to 40 × 54 in.

TEMPERATURE LIMIT OF RESISTANCE TO PROGRESSIVE SCALING  
in Still Air



BEHAVIOR OF CHROMIUM STEELS OF DIFFERENT ALLOY CONTENT  
During Hydrogen-Sulfide Attack



## Here's 124 Pages of Valuable Data on STAINLESS STEEL

Stainless and heat resistant steel can usually be classed as a critical material, since it not only contains strategic alloys but is indispensable in many vital industrial and armament applications. It is always important, therefore, to make every pound go as far as possible.

The latest edition of our comprehensive 124-page, case-bound Stainless Steel Handbook is ready for distribution now. It will help you to select the right stainless steel and to use it properly. Comprehensive listings of analysis,

properties and characteristics of each type will guide you in specifying grades that will do your job most efficiently. Clear, concise fabrication data will help you speed production and cut waste.

Your copy of the Stainless Steel Handbook will be sent—*without charge*—upon request. Our only stipulation: please make your request upon your company letterhead. • Write *Allegheny Ludlum Steel Corporation, Oliver Building, Pittsburgh 22, Pa.*

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For Stainless Steel in ALL Forms—call  
**Allegheny Ludlum**

WSW 5185 B

Warehouse stocks carried by all Ryerson Steel plants



## equipment developments

(Continued)

windows. "Imperial" model electric dehumidifier is said to remove up to  $3\frac{1}{4}$  gal water from air in 24 hr. Central units are 2 hp (self-contained) and 2, 3 and 5 hp (remote) air cooled models with factory-made components available for duct systems.

### Portable Humidifier

"DEFENSOR" PORTABLE humidifier said to atomize 1 pt of water per hr. sufficient to humidify a room up



to 3000 cu ft in area—Silver Creek Precision Corp., Dept. AA, Silver Creek, N. Y. Unit is said to distribute fine, uniform mist of moisture particles varying

from 1 to 5 microns in diameter. Unit weighs 9 lb; its power consumption is about 45-w.

### Cooling Units, Heat Pumps

LINE OF AIR COOLED cooling units and heat pumps in 2, 3 and 5 hp sizes—Gibson Refrigerator Co., Div. of Hupp Corp., Dept. AA, 515 W. Williams, Greenville, Mich. Self-contained units are said to comprise a complete line, available as air conditioners and as heat pumps with simplified controls for automatic operation in homes, offices, stores and shops. Prefabricated duct work can be cut with a knife, the company states.

### Dust Collector Door Fasteners

No. 25 COMPRESSION TYPE fasteners for sealing doors against gaskets in industrial dust collectors—Torit Mfg. Co., Dept. KP-AA, Walnut & Exchange Sts., St. Paul, Minn. Cadmium-plated fastening unit consists of sliding, pivoted latch which is tightened down under the compression action of a thumb screw. Units are also suitable for light-proof and vibration-resistant applications.

### Filter Pad

"FILTER-AIRE" FILTER PAD which can be cut to size desired—Peden Equipment Co., Dept. AA, 4512 Mt.

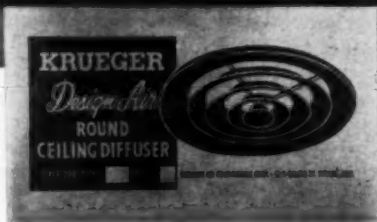
WHEN YOU BUY REGISTERS AND GRILLES  
LOOK FOR THE KRUEGER "DESIGN-AIR" CARTON

IT'S THE **PACKAGE** with the

# PROFIT!



The #900 BASEBOARD DIFFUSER is a "job winner". Quality made . . . yet it gives you a real price edge. Count on KRUEGER'S DESIGN-AIR line to get you those "close" jobs.



Successful dealers everywhere are using the Krueger "Design-Air" line.

Reason: It's the really complete high quality line that's priced right to give you the biggest profits on the market today.

# K R U E G E R

Air Conditioning Corp.

19 E. RILLITO • TUCSON, ARIZONA



# "ONE OF THESE PAIRS OF WISS SNIPS HAS BEEN IN USE SINCE 1927!"

*says Joseph Janecka, Jr.  
Riverside, Illinois*

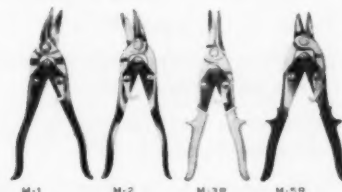


"In our two-man sheet metal shop, my father and I use 21 pairs of Wiss snips," says Joseph Janecka, Jr.

"Believe it or not, one pair of these snips has actually been in steady use since 1927 . . . and it's still sharp enough for more years of heavy-duty service!"

"Wherever we go, we're never without Wiss snips. Each of us keeps a complete set of Wiss Aviation and Solid Steel snips at the shop and in the car. In addition, we keep a full set at home. Needless to say, we think there's nothing like Wiss."

Like Mr. Janecka, you'll agree Wiss snips are in a class by themselves . . . because nothing tackles the tough jobs like Wiss. Whether it's cutting 16 gauge stainless steel . . . intricate scrolls . . . or precision notching, there's a pair of Wiss snips tailored to do the job with ease and perfection. You can't miss with Wiss!



## WISS METAL MASTER "AVIATION" SNIPS

Only 10 inches long. Cut with half the effort of standard 12½ inch snips. Now with colorful vinyl handle grips ("R" designates vinyl handle grips, optional and extra). M-1 cuts left, M-2 cuts right . . . both make intricate scrolls and circles. M-3 for straight cuts and shallow arcs. M-5 for notching, nibbling and cutting up to 16 gauge metal. Edges serrated to prevent slipping.

*Made by Metal Craftsmen  
For Use by Metal Craftsmen*

WISS SNIPS TAKE AS MANY AS 200 STEPS  
TO MANUFACTURE, MANY BY HAND

# WISS

...always a cut above competition

J. WISS & SONS CO., NEWARK 7, N. J.

World's Largest Manufacturer of Shears, Scissors, Pinking Shears, Skalloping Shears, Metal Cutting Snips and Garden Shears

## FOR OIL BURNERS GAS HEATERS AND AIR CONDITIONERS



*New!*

## FLUSH-TYPE LATCH by National Lock

**check these convenience and  
cost-saving advantages!**

1. Mounts flush. Absence of projecting handle streamlines your product.
2. Simplifies cartoning and crating. Fewer protective pads required.
3. Operated by large coin or screw driver. No special tools needed.
4. Latch tongue can be adjusted in one simple operation.
5. Permits pre-shipment latch installation.
6. Provides worthwhile savings within your functional hardware costs.

*Send for specifications and sample today*

**Look To This One-Source Supplier For  
All Your Hardware Requirements**

**CATCHES • HANDLES • HINGES  
PULLS • SCREWS • KNOBS  
"KEPS" • "SEMS"**

*Write for Complete Information*



**NATIONAL LOCK COMPANY**

**Rockford, Illinois**

## equipment developments

(Continued)

Vernon, Houston, Tex. Pad is  $15 \times 24 \times \frac{3}{4}$  in., may be compressed in thickness to fit installation. Treated hair pad is rigid enough to stand alone, and requires no frame. Filter is permanent and renewable by water washing, according to the manufacturer.

### Air Handling Unit for Stores

AIR HANDLING UNITS consisting of twin blowers and motors designed for operation with the company's standard condensing units—Rheem Mfg. Co., Dept. AA, 7600 S. Kedzie Ave., Chicago 29. Designed for



store installation, the units deliver 40,000 and 57,000 Btuh of cooling. Entire unit is 19 in. high,  $41\frac{5}{8}$  in. long,  $33\frac{3}{4}$  in. wide and weighs 150 lb. The unit may be supplied with grilles for supply and return air. Cooling coil is said to drain properly whether unit is suspended from ceiling or inverted for attic installation with duct work. Refrigeration connections, condensate drain and electrical connections can be made from either side.

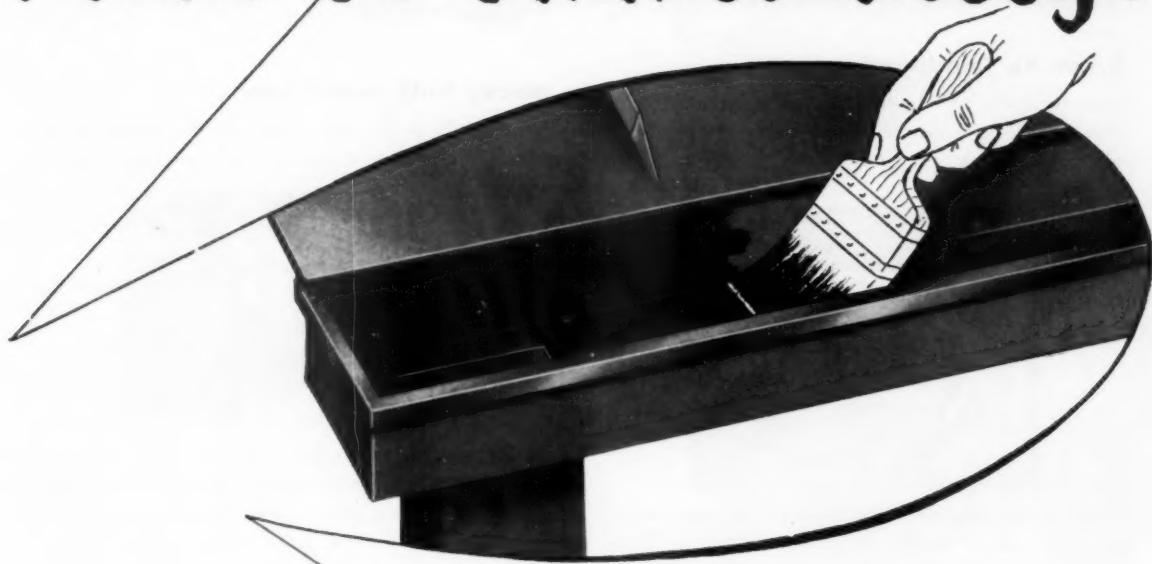
### Direct-Driven Fans

TYPE LS DIRECT-DRIVEN fans designed for better performance in low static pressure ranges—Aerovent Fan Co., Inc., Dept. AA, Ash and Barton Sts., Piqua 2, O. Employing 4-blade airfoil propellers, units are available in ring, square panel and duct types from 24 to 48 in. diameters. Ring and panel types have curved orifice rings; duct type is used in standard application duct sections with entire unit inside air stream. All-welded units are available with special-duty motors, alloy propellers and protective coatings.

### Foam Plastic Adhesive

"BONDMASTER G458" fast drying, trowelable mastic for bonding rigid and semi-rigid plastic foams to each other and to other materials—Rubber & Asbestos Corp., Dept. P-AA, 225 Belleville Ave., Bloomfield, N. J. Designed for use as cores with rigid sandwich panels in heating and cooling applications, adhesive resists humidity and freezing temperatures. Mastic can

# Paint It\* Immediately!



## Follansbee Terne\* Needs No Special Treatment!

Follansbee Terne offers the wonderful advantage that it can (and should) be painted immediately after installation. Unlike many other metals, it does not need to weather or be given any special treatment before it can make a perfect bond with the paint—a bond that will last.

You'll find too that Follansbee Terne offers many other advantages as a complete roofing material; and for gutters, downspouts, valley,

flashing and weathersealing as well. Terne is far more ductile, Terne is easiest to solder and expansion joints are unnecessary. Most importantly, Terne has proof of its long life and serviceability.

When you sell and install Follansbee Terne, you're assuring yourself a better profit. You're also giving your builder customers a *lifetime, quality* job that will please his customers too.

**Follansbee Terne is carried in stock by leading sheet metal distributors everywhere**



# FOLLANSBEE

**STEEL CORPORATION**

FOLLANSBEE, WEST VIRGINIA

**Terne Roofing • Cold Rolled Strip • Polished Blue Sheets and Coils**

*Sales Offices in Principal Cities*

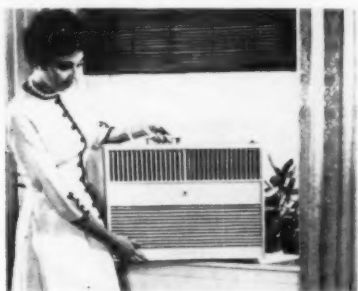
## equipment developments

(Continued)

be applied with saw-tooth spreader, notched trowel or spatula.

### Room Air Conditioning Line

LINE OF ROOM air conditioning units including portable model which can be mounted in window to cool, filter, dehumidify and circulate the air or reversed to

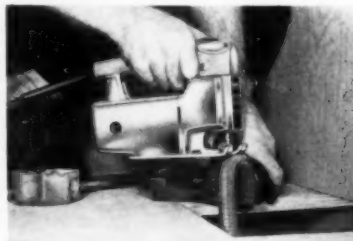


become heat pump to warm room air—*Carrier Corp., Dept. AA, 300 S. Geddes St., Syracuse 1, N. Y.* Portable unit has grilles on either side, can be installed in any standard window. Models include: slim-silhouette models, a 1 hp unit which is designed to operate on

low electrical requirements; a 1 hp heat pump; a 2 hp window unit said to cool two rooms; "Console Weathermaker" for home or office; "Crestline" window units in 1 and 1½ hp sizes with two-step thermostat; and "Starline" economy priced models in 1, 1½ and 2 hp sizes.

### Heavy Duty Sabre Saw

MODEL H75 HEAVY DUTY sabre saw for cutting metal, wood and various types of wall materials—*Stanley*

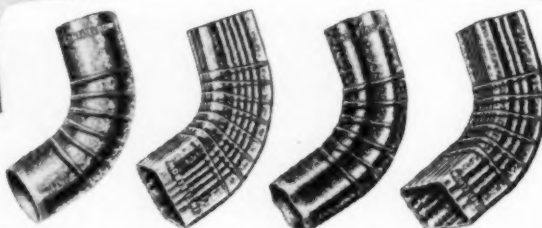


*Electric Tools Div., Stanley Works, Dept. AA, 111 Elm St., New Britain, Conn.* Single screw secures blade. User can cut close to wall by moving base back and using special shear cutting blade. Anti-vibration mechanism and chip blower are featured. Kit includes saw, eight blades, ripping guide and a metal carrying case.



## Conductor L. Bow says:

Let Cincinnati Elbows put extra profit in your next job. Easier to install because they're mechanically formed, on automatic machinery, to fit any standard size pipe. Longer-lasting because they're hot-dipped in zinc, after formation, to stop raw-edge rust. All sizes, angles, gauges—in copper, aluminum, stainless or galvanized steel. Ask your jobber.



## CINCINNATI ELBOW CO.

4730 Madison Road • Cincinnati 27, Ohio



# More to Sell\*

with



\* HIGH CAPACITY

\* POSITIVE CONTROL  
(By Humidistat—Set It, Forget It)

\* AUTOMATIC OPERATION  
(Furnishes Exact Humidity Needed—  
But Only When Needed)

## PLUS! BACTERIA REMOVAL

Now...you have even more to sell with Aprilaire Humidifiers!

The unique operational advantages of this newest principle of automatic humidification now includes an outstanding and revolutionary first—BACTERIA REMOVAL!

Up to 70% of all bacteria is removed from the air stream passing through the Aprilaire...and this new and vital health feature is a premium benefit to offer your customers.

And the Aprilaire's many other features—positive control, high capacity, constantly maintained proper relative humidity—all add up to better health, greater comfort and economy. For more to tell...and sell...it's the Aprilaire!

## 3 NEW MODELS!



PLENUM MODEL — for forced air furnaces. Easily mounted on warm air bonnet. Uses plenum heat for evaporation — furnace fan and ducts for distribution of humidified air. Two models available — Model 110 with capacity of 5.3 lbs. of water per hour; Model 112 (New) with capacity of 9.2 lbs. water per hour.



UNIVERSAL MODEL — installed on or between joists in basement or crawl space. Flexibility of installation permits baseboard or wall registers. Heat source — steam or hot water. Capacity up to 9 lbs. water per hour.



PORTABLE MODEL — No installation necessary. Ideal for offices, apartments — wherever a permanent installation is not desired. Push-button control for high or low humidification, heating or fan only. Capacity up to 4.3 lbs. water per hour. Humidistat is optional equipment.

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**RESEARCH PRODUCTS CORPORATION**  
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I'm interested in the Aprilaire. Send me more information including literature, prices, specifications and the profit-making proposition.

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# Fashionable

## FAN-AIR®

### BASEBOARD DIFFUSERS

... styled  
to blend  
inconspicuously

with the décor  
of every room . .

Engineered to make any heating and cooling system operate better. Sturdily built, dent resistant, made of 20 gauge steel. Built-in full-length balancing damper and instantly adjustable boot opening for easy installation in new and old homes. Fit into the baseboard with a minimum of protrusion; finished in a neutral prime coat for painting to harmonize with any color scheme.

3 Sizes: 3' 5' 8'

ASK YOUR JOBBER!

## FAN-AIR® COMPANY

DOWAGIAC MICHIGAN

## new literature . . .

### Warm Air Perimeter Heating

IN THE ARTICLE "Let's Look Again at Perimeter Heating" Guy A. Voorhees reviews the basic principles of warm air perimeter heating and discusses the heating problems created by various types of structures which the system is designed to overcome. Mr. Voorhees points out that warm air heating dealers, builders, homeowners and building code enforcement officials often have very different ideas of perimeter heating and that even experienced dealers do not always understand the basic principles involved. He begins his presentation with a discussion of early attempts at perimeter heating and outlines the history of the system through successive stages to the present point in its development. Subjects covered include The Problem of the Slab Floor House; Providing Warm Floors; Necessity of Heating Crawl Space or Basement; Off-setting Chilling Effects of Windows, Doors and Exposed Wall Areas; and Location of Return Air Intakes. Reprints of the article are priced at 10 cents each—*National Warm Air Heating and Air Conditioning Association, Dept. AA, 640 Engineers Bldg., Cleveland 14.*

### Films for Trade Meetings

CATALOG lists educational sound movies available to recognized groups such as associations, business firms and other organizations. Averaging about 30 minutes projection time, the films cover such subjects as the production, fabrication and application of stainless steel; the discovery, development and operation of an iron ore mine; operations at the company's Fairless Works; studies conducted at the research center in Monroeville, Pa.; steelmaking in the South; and the full story of steelmaking, from the time the raw ore leaves the mines until the finished product leaves the mills. No rental is charged. Film distribution centers are located in Fairfield, Ala., Chicago, Cleveland, New York, Pittsburgh and San Francisco—*Distribution Supervisor, Motion Pictures, United States Steel Corp., Dept. AA, 525 William Penn Pl., Pittsburgh 30.*

### Profitable Sales Meetings

TO ACHIEVE MAXIMUM EFFECTIVENESS from sales meetings a small firm must often do a more thorough and convincing sales job with its own sales staff members than with the customer, according to the leaflet "Making Your Sales Meetings Profitable" (No. 86 in the Small Business Administration's series of Management Aids). Some pointers discussed in the Aid are: Plan meetings with customers and prospects in mind; don't cover too many subjects; provide variety;



## NEW 1958 CHEVROLET TRUCKS WITH NEW HUSTLE! NEW MUSCLE! NEW STYLE!

*Just look at all they offer  
that's new and better . . . and  
you'll see why these new Chevies  
are the fleetest, sturdiest,  
handsomest dollar-savers yet!  
Meet Chevrolet for '58!*

### NEW LIGHT-DUTY APACHES

Thrifty Apaches offer three new Step-Vans complete with walk-in bodies. With high-capacity panels, pickups and four-wheel drive models, this expanded light-duty lineup has a dollar-saving answer to your delivery chores.

### NEW MEDIUM-DUTY VIKINGS

Hardy Vikings roll in with nine brand-new models, offering new cab-to-rear-axle dimensions for improved semi-trailer, dump, stake and van-type operations. Options available boost GVW ratings all the way to 21,000 lbs.

### FAMOUS 6's OR SHORT-STROKE V8's

The engine lineup is full of new pep and power—whether you choose a 6 famous for economy or a high-compression V8. Look over Task-Force 58 at your Chevrolet dealer's. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.



SEE THE LATEST EDITIONS OF THE "BIG WHEEL" IN TRUCKS—1958 CHEVROLET TASK-FORCE TRUCKS

## new literature

(Continued)

change the pace of presentations; use showmanship as spice in the meeting; prevent interruptions; and encourage two way discussion—*Small Business Administration, Lafayette Bldg., Washington, D. C.*

### Oil Burner Controls

RESIDENTIAL OIL BURNER CONTROLS handbook is designed to serve as a condensed guide for installers and servicemen. Included are sections dealing with stack mounted relays, electronic relays and flame detectors, oil valves, troubleshooting tips and conversion hints. Installations of both new and old model controls are covered—*Minneapolis-Honeywell Regulator Co., Merchandising Div. Dept. AA, 2753 Fourth Ave., S., Minneapolis 8.*

### Electronic Air Purifier

CIRCULAR outlines advantages provided by "Sun-Lite-Aire" air purifier designed for installation in the return duct of a furnace or an air conditioning unit. According to the manufacturer, the purifier removes staleness from the air, kills airborne bacteria and eliminates odors. Installation is simple, requires only minutes, the company states—*Sampson Chemical & Pigment Corp., Ultraviolet Div., Dept. AA, 2830-36 W. Lake St., Chicago 12.*

## Packaged Air Conditioners

"AECR" PACKAGED AIR CONDITIONERS featuring sectional construction where space is limited are described in catalog EMS-5715EC (24 pages)—*Drayer-Hanson Div. of National-U.S. Radiator Corp., Dept. AA, 3301 Medford St., Los Angeles 63.*

### Air Cleaning

BULLETIN No. 50 entitled "Streaking & Smudging Around Air Outlets" explains that airborne dirt deposited on the ceiling adjacent to air outlets comes from one or both of two sources: 1) The primary air stream may carry dirt through the ducts and may deposit it adjacent to the outlets; 2) The secondary or induced air streams carry dirt from the occupied spaces and may deposit it adjacent to the outlets. Each source is considered in detail and suggestions are given designed to help in coping with the problem—*Air Filter Institute, 300 Independence Ave., S.E., Washington 3, D. C.*

### Valves and Controls for Heat Pumps

SPECIFICATIONS, diagrams and operating features of valves and controls for automatic heat pump operation are presented in booklet 1687 (20 pages). Included are descriptions of the "D50" de-icer control, "C17" automatic cycling control, and "V25" or "V26" re-

## STACKED SHEET CUTTING SAVES COSTLY LABOR HOURS

Bett-Marr's amazing 3-wheel band saw is especially designed for sheet metal work and will cut 50 to 70 stacked galvanized sheets. Its 24 inch throat accommodates large sheets, and it is ruggedly built for trouble-free performance.

Quickly adjustable blade speeds from 100 to 3000 FPM allow easy cutting of many materials\* without blade chatter. This versatile saw will friction-cut stainless steel, up to 12 gauge, with no distortion. Perfect blade control assures smooth radius and straight line cuts. Bett-Marr costs so little it will pay for itself quickly in any shop.

### LOW COST 2-WHEEL SAW OUTPERFORMS COSTLY SAWS

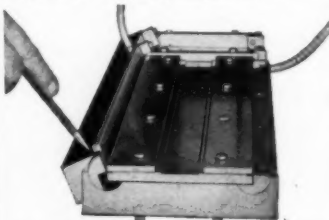
Bett-Mar Model 14SM, shown below, will do everything its big brother (Model 24S) will do, except accommodate the larger sheets. In actual operation, side by side, it has outperformed saws costing 6 times as much. Model 14SM has a 13½ inch throat,



as compared to the 24 inch throat of the larger model. It has the quickly adjustable blade speeds, from 100 to 3000 FPM, for cutting wood, metal, and plastics without blade chatter. Like its big brother, it is especially designed for stacked sheet metal cutting. Both saws have wheels designed so that band cannot slip off.

### BETT-MARR TOOL FOR 24" INSIDE BENDS

The new, larger cheek bender makes bends up to 24 inches. Perfect bends along the entire length are assured by a two-way trunnion that keeps the bending bar in position at the starting point. The adjustable plate can be set for bends of ¼" to ¾". Capacity is 24 gauge but 20 and 22 gauge spacers are available. Shipping weight: 77 lbs.



Write for information or ask your distributor



\*Cuts 50 to 70 STACKED GALVANIZED SHEETS; also bronze, copper, steel castings and forgings, wood and plastics.

#### MODEL 24S—

3 wheel band saw with 24" throat. Height 61", depth 44", 22" wide, table 20" x 22".

Cuts 50 to 75 stacked sheets



Bett-Marr Mfg. Co. HOPKINS, MINNESOTA



No matter which **FINISH** you like—you can buy it in

# MicroRold® QUALITY STAINLESS STEEL



**2D**—A silvery white, but non-lustrous, surface produced by annealing and pickling cold reduced material. Steel sheets & strip in this condition are most ductile and the surface holds lubricant well for severe drawing operations.



**2B**—Steel in the 2D condition which is subsequently rolled on a "skin pass" or temper mill. The surface acquires a bright finish from the polished rolls. This surface is somewhat more dense and hard than 2D and is a better starting surface for later finishing and buffing operations.



**No. 3**—This surface is made by grinding with a No. 100 abrasive. This surface is smooth but not as reflective as 2B.



**No. 4**—A finer finish than No. 3 made by grinding with a No. 150 abrasive. Like No. 3, this surface is easily blended with hand grinders after forming, drawing or welding.



**No. 7**—Good reflectivity and brilliance made by polishing with a No. 400 abrasive. This semi-mirror finish must be protected during fabrication by adhesive paper or strippable plastics lest the finish be marred beyond repair.



**BRIGHT**—A highly reflective surface made by cold reducing with highly polished, glass-hard rolls. This finish is only available in Type 430 stainless.

These are our standard surface finishes that are available in types 201, 202, 301, 302, 304 and 430 except Bright which is type 430 exclusively.

These finishes are regularly supplied in sheet and coil form in widths up to 48 inches.

Since Nos. 3, 4, 7 and 430 Bright are smooth reflective surfaces, they are not recommended for severe drawing without special precautions as the mill finish may be marred. Applications such as dairy machinery, kitchen and restaurant equipment and architectural decorative work require only local forming, so these highly polished surfaces are not greatly disturbed. All mill polished sheets are carefully packed to avoid handling imperfections. Protective adhesive paper can be specified by the buyer when needed.

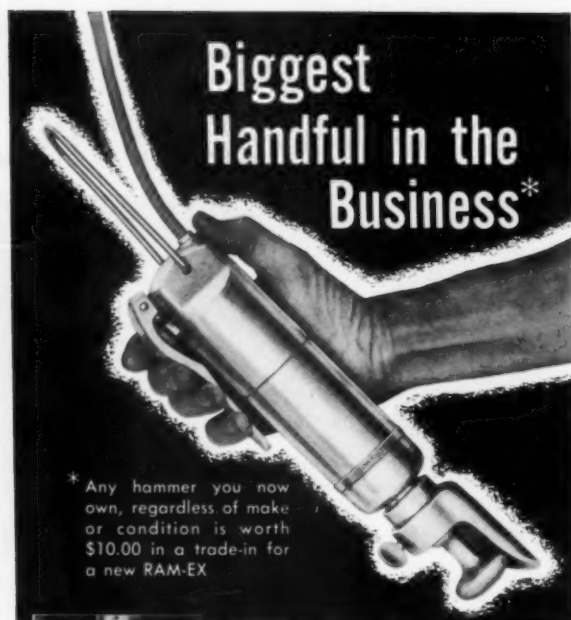
For specific information on recommended surface characteristics for a particular stainless steel sheet and strip application, address your request to our Product Development Dept.



## Washington Steel Corporation

Producers of Stainless Sheet and Strip Exclusively

11-A WOODLAND AVENUE, WASHINGTON, PA.



**Biggest Handful in the Business\***

\* Any hammer you now own, regardless of make or condition is worth \$10.00 in a trade-in for a new RAM-EX



RAM-EX sealing a Pittsburgh lock seam



RAM-EX fitted with lock seam sealer to seal any inside or outside lock seam

#### FULL CONTROL OF BLOW FORCE

...With a RAM-EX, blow force is adjustable at the tool by a simple adjustment of impact control behind trigger.

THE RAM-EX Model AR4H adjusts perfectly to seal any seam a lock former can produce in sheet metal up to 18 gauge.

**COMPACT** ... RAM-EX offers truly practical one hand operation as it weighs only 4½ lbs. and is 7½ inches long. Its hand size trigger does not interfere with grip, and recoil is all but eliminated with the RAM-EX air cushioning action.

**CONVENIENT**...RAM-EX, Model AR4H comes equipped with a removable hanger to allow for overhead suspension if desired. Identical unit is available with a pistol grip when preferred.

**ECONOMICAL**...RAM-EX operates at air pressures of from 30 to 100 pounds per square inch.

**SAFE**...RAM-EX will not operate until trigger is depressed and tool tip makes contact with the work.

**PRICE**...only \$89.50 (portable compressor information available on request)

**FULLY GUARANTEED**...for one year against any defects in materials or workmanship.

Send for the name of your nearest distributor and descriptive literature on the RAM-EX and the more than 40 different tools available for use with "The Biggest Handful in the Business."

**E. V. NIELSEN INC.**

575 HOPE ST., STAMFORD, CONN.  
P. O. BOX 353, GLENBROOK STA.

## new literature

(Continued)

versing valve for heating and cooling—Ranco Inc., Dept. AA, Columbus 1, O.

### Relief Valves for Water Heaters

"WATER HEATER RELIEF VALVES, Common Causes for Making Them Operate — For Your Protection" explains the function of the valves, what causes them to operate, and why they may operate (and perform their function) when they apparently should not do so. Ask for catalog PV-C-415—The Patrol Valve Co., Dept. HA-3, AA, 2310 Superior Ave., Cleveland.

### Sheet Metal Working Machinery

LITERATURE illustrates No. 607 hydraulic angle iron shear, designed for shearing angle iron up to 4 × 4 × ¼ in., and No. 95 hydraulic punch press. The machines may be purchased separately or as a package with a single power pack operating both shear and punch press—W. A. Whitney Mfg. Co., Dept. AA, 636 Race St., Rockford, Ill.

### Ring and Circle Shear

ILLUSTRATED BULLETIN 70F, SUPPLEMENT No. 2, introduces Model 33 RC ring and circle shear with fingertip control and power downfeed. Other features include self-compensating circle arm and high chrome, high carbon cutters—Niagara Machine & Tool Works, Dept. AA, 683 Northland Ave., Buffalo 11.

### Clay Products for Heating Systems

TYPICAL INSTALLATIONS of furnaces, fireplaces and underfloor heating systems using clay duct are illustrated in the booklet "Design with Confidence—Build with Pride" (AIA File 5-K). Products described include clay heating ducts, clay flue lining, clay pipe, etc.—Robinson Clay Product Co., Dept. AA, 65 W. State St., Akron 9, O.

### Thermostatic Expansion Valves

SIX BULLETINS contain technical information on "A-P" thermostatic expansion valves designed to simplify proper selection. Each of the two page sheets includes application information, specifications, selection tables and dimensions—Controls Co. of America, Dept. AA, 2450 N. 32nd St., Milwaukee, Wis.

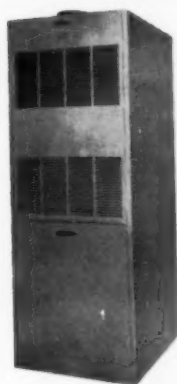
### Furnace Humidifier

ILLUSTRATED DATA SHEET presents features of Model F10-CH furnace humidifier. Advantages claimed include high evaporating capacity, easy adjustment of water flow to meet varying requirements, and sim-

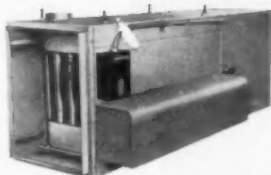


**COZY**

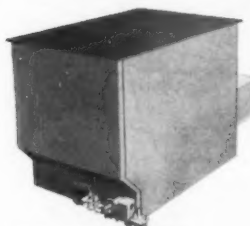
**...IS EASY TO SELL  
...EASY TO INSTALL"**



Compact UP-FLOW AND COUNTER-FLOW COZY FORCED-AIR MODELS give zero clearance; let you use 4" piping or conventional ductwork. Has exclusive Heat Wringer Heat Exchanger. Adaptable for air conditioning. 75,000, 105,000, 140,000-BTU input capacities.

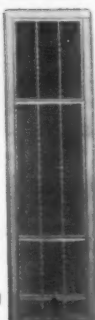


COZY HORIZONTAL FORCED-AIR MODELS available in five capacities: 60,000 BTU to 140,000 BTU input. This space- and money-saver can be installed in attic, utility room, under floor...even without basement.



The COZY CHALLENGER, the best buy in floor furnaces, has four capacities: 35,000, 50,000, 65,000, and 75,000 BTU.

COZY WALL HEATERS, available in four capacities, single- or dual-wall installations; three different temperature controls are available. AGA approved under 1957 central heating standards.



Earl Suttle, owner of MONARK HEATING COMPANY — one of the fastest growing in the area — says, "The COZY line is easy to sell and easy to install. We know from experience that COZY gives all the advantages of the high-priced lines yet is priced competitively, so that we can sell against anyone."

If you are missing out on both sales and profit, write today for all the facts about the COZY year-around sales plan. YOU'LL BE GLAD YOU DID!

**COZY**

**THE ADVANCE FURNACE CO.**  
WICHITA KANSAS

plicity of design construction. Installation instructions are included—*Air-Heat Corp., Dept. AA, 4535 W. Washington Blvd., Chicago 24.*

### Corrosion Resistant Fans

THE OPERATION, SPECIFICATION and performance of polyvinyl chloride centrifugal fans, designed for blower installations requiring high chemical resistance and wide temperature range are presented in a four page brochure designated PVC 101. Five fan models ranging in size from 9½ to 40 in. are described—*Chicago Blower Corp., Dept. AA, 9863 Pacific Ave., Franklin Park, Ill.*

### Arc Welding

THE SECOND EDITION of "New Lessons in Arc Welding" (320 pages, \$1) has been extensively revised to include information on new procedures, machines and electrodes. Based on arc welding courses taught at the Lincoln Arc Welding School and the experience of other arc welding teachers, the book is designed to be a practical text for teaching arc welding in vocational, trade, and industrial courses. It also serves as a reference book for welders, supervisors and others using arc welding. The book is divided into seven

sections with each section comprising several lessons. The first section deals with specific instructions on arc welding techniques. The next five sections pertain to the proper use of welding machines and electrodes. A final section is principally devoted to reference material on metals, procedures, testing and weld symbols—*The Lincoln Electric Co., Dept. AA, 22801 St. Clair Ave., Cleveland 17.*

### Heavy Duty Electric Drills

FOUR PAGE FOLDER (JE-2263) covers a new series of reversible heavy duty electric drills designed to provide one-third additional power. Specifications for "EN" ⅝, ¾, ⅞ and 1 in. reversible portable electric drills are included as well as specifications for "EL" and "EJ" electric drills, screwdriver-nutsetters and impact wrenches—*Thor Power Tool Co., Dept. AA, Prudential Plaza, Chicago 1.*

### Analyzing Net Profits Figures

WAYS IN WHICH SMALL BUSINESSES can analyze their net profits figures are explained in the leaflet "Are You Kidding Yourself About Your Profits," No. 25 in the Small Business Administration's series of Marketers Aids. The leaflet states: "New profit is probably the most important indicator of the success of a business operation. You should be concerned about the

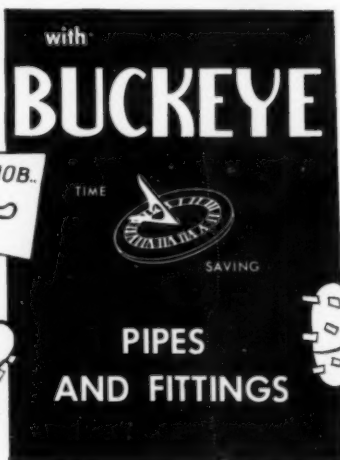
#### MORE SELLING TIME



DO A BETTER JOB... FASTER...

#### SPECIFY BUCKEYE PIPES AND FITTINGS

Get off the work bench... win more installations! Buckeye Pipes and Fittings save 'time-outs' for work at the bench and give you more time to score new sales. Rigidly constructed of quality materials, they keep 'in shape'. Special packaging makes it easy to see the 'name and number' of every Buckeye Pipe and Fitting. Specify Buckeye for every job!



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**Uni-Flo**

ENGINEERED AIR  
DISTRIBUTION

**get guaranteed performance  
with Venturi-Flo  
ceiling diffusers**

BARBER-COLMAN 1020 MODEL JS VENTURI-FLO  
VELOCITY-TEMPERATURE TRAVERSE THROUGH VERTICAL PLANE

A	B	C	D	E	F	G	H	I	
Vel-Temp.	Vel-Temp.	Vel-Temp.	Vel-Temp.	Vel-Temp.	Vel-Temp.	Vel-Temp.	Vel-Temp.	Vel-Temp.	
30 73.0	55 71.5	55 70.8	55 70.4	25 72.8	70 70.9	35 70	55 70	30 71.5	9'-6"
									9'-0"
40 71.2	25 72.0	30 72.5	30 72.5	25 72.0	25 72.0	35 71.5	30 71.6	35 71.5	7'-6"
50 71.5	25 72.3	25 72.0	25 71.9	40 71.9	30 71.9	30 72.0	30 72.2	30 71.9	5'-0"
40 72.2	35 71.9	35 72.2	30 72.0	35 72.0	35 72.0	30 72.5	35 72.0	50 71.9	2'-6"
50 72.5	40 71.5	45 71.2	45 71.5	30 72.6	45 72.9	50 72.5	40 72.9	50 71.9	6"

SUPPLY AIR VOLUME — 545 CFM  
SUPPLY AIR TEMPERATURE — 51.8°F  
AVERAGE ROOM AIR TEMPERATURE — 72.0°F AT THE 5' LEVEL



Opposed-blade volume control is easily operated through face of diffuser.



Simple adjustment provides air patterns from horizontal to vertical.

The uniform, draft-free air distribution pattern charted above is typical of the results you can predict with Venturi-Flo ceiling diffusers. With Venturi-Flo, the mixing of primary air with room air takes place throughout the entire length of the throw. This permits even higher temperature differentials than shown in the traverse above. Barber-Colman guarantees performance of Venturi-Flo ceiling diffusers when they are used according to published data. Contact your nearby Barber-Colman field office or write for complete information. Remember . . . only Barber-Colman combines skills in both air distribution and automatic temperature controls for undivided responsibility.

**BARBER-COLMAN COMPANY**

Dept. W, 1106 Rock Street, Rockford, Illinois

reliability of that figure. You can be surer of its accuracy by understanding the principal ways in which profits can be erroneously stated." The Aid explains that simple cash-flow figures alone usually do not give a reliable picture of income and expenses because credit business comprises over 90 percent of all commercial transactions—*Small Business Administration, Lafayette Bldg., Washington, D. C.*

### Perimeter Heating Systems

RESULTS OF RESEARCH INVESTIGATION of small duct warm air perimeter heating systems are reported in bulletin No. 445 "Performance of Small Pipe Warm Air Perimeter Heating Systems." The report covers investigations from 1951 through 1954 which were conducted in the warm air research residence No. 2 of the National Warm Air Heating and Air Conditioning Association on the campus of the University of Illinois. In addition to discussing the performance of warm air perimeter heating systems with and without the addition of heat to the basement, the report contains a comparison of perimeter and high side-wall convection systems. Copies are priced at \$1—*University Engineering Experiment Station, University of Illinois, Urbana, Ill.*

### Gas Burner

DATA SHEET lists the features of "Jet Power" gas burner including quiet operation, rugged construction and easy servicing. According to the company, the burner's "pilot with a brain" provides 100 percent shutoff without limiting manifold capacity—*Auburn Burner Co., Dept. AA, Edgerton, O.*

### Facts on Profits

FACTS ABOUT PROFITS are presented in the publication "Profits—Something for Everyone." According to the booklet, profit per dollar of sales averages five percent or less. Copies are priced at 50 cents each—*Chamber of Commerce of the United States, 1615 H St., N. W., Washington 6, D. C.*

### Furnace Vacuum Cleaners

BROCHURE illustrates equipment for cleaning furnaces and air conditioners. Standard tools for "Master-Vac" and "Spic-Span" cleaners are shown as well as special auxiliary kits and attachments—*Premier Co., Dept. KP-AA, 755 Woodlawn Ave., St. Paul 16, Minn.*

### Stainless Steel

CHEMICAL COMPOSITION, strength factors and physical properties of a wide range of stainless steel types in-

## The Trademark of Quality ATTRACTS The Best Customers

Mechanics who most appreciate fine tools . . . home craftsmen who delight to use them . . . farmers who constantly need them . . . all are drawn in increasing numbers to the store where Diamalloy Quality Tools are prominently displayed.

Ask your wholesaler for a new Diamond Tool Catalog and Price List . . . or write



**DIAMOND CALK** *Horseshoe Co.*

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Established 1908

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Cut costs on heating, air-conditioning duct-liner installations:

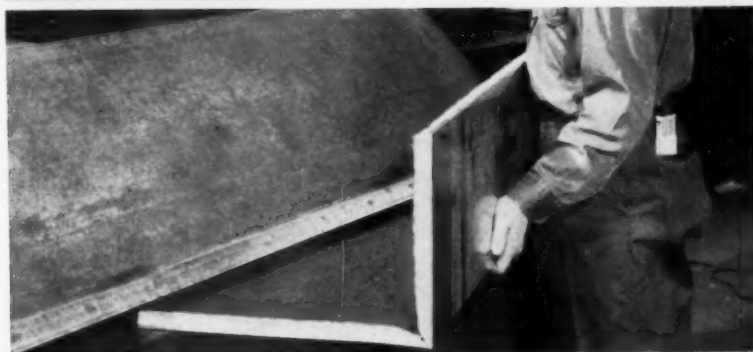
## Fabricate ducts fast with black-vinyl-coated MICROTEx



### A.

Just cut Microtex to fit the flat metal sheets . . .

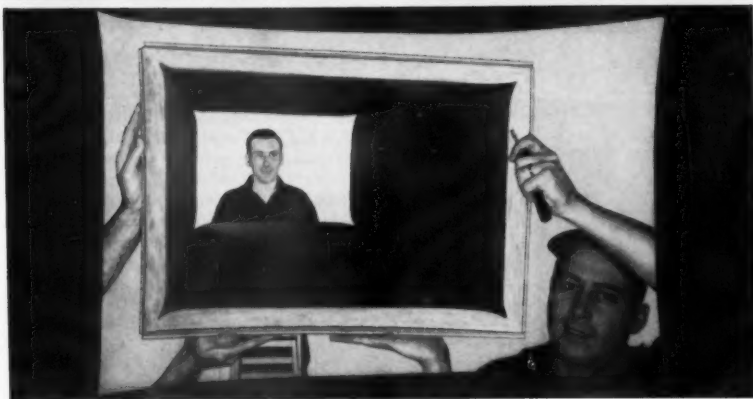
L·O·F Glass Fibers' Microtex Duct Liner cuts easily with knife or scissors . . . requires no special tools or skills. Pigmented vinyl shows it's *fully coated* . . . *quality-made* to resist air erosion, even at peak velocities. Black vinyl also tells at a glance which side faces the air stream.



### B.

...then quickly form in the brake with the metal.

Microtex Duct Liner is strong and resilient . . . can be formed in the brake without damage. This fine glass fiber insulation easily withstands routine shop handling. It's semirigid, yet light in weight . . . pleasant to handle, quickly and economically installed.



### C.

Prelined ducts save money . . . satisfy customers.

Black-vinyl-coated Microtex saves the cost of painting inside finished ducts, near grilles or large registers. And its black vinyl coating eliminates paint flaking into the air stream after installation, such as might happen with other duct liners.

### New Microtex Duct Liner offers maximum insulation per dollar —

L·O·F Glass Fibers' Microtex Duct Liner serves a dual purpose: it minimizes mechanical noises efficiently; and it insulates warm- and cold-air ducts against heat transfer. When ducts are lined with Microtex, the sheet metal itself acts as a vapor barrier.

Your nearest distributor gives fast delivery on low-cost Microtex Duct Liner in 1½, 2 and 3 lb./cu. ft. densities, and in standard widths and thicknesses. For his name, write: L·O·F Glass Fibers Company, Dept. 45-117, 1810 Madison Avenue, Toledo 1, Ohio.

L·O·F GLASS FIBERS COMPANY • TOLEDO 1, OHIO



Each and every  
**CRESTOLOY PLIER** is



**CRESTOLOY END CUTTING NIPPERS**  
No. 72, 6". Also in 7" size.

**individually tested!**



**CRESTOLOY HEAVY DIAGONAL CUTTING PLIERS**  
No. 542, 7" size only.



**CRESTOLOY LONG NOSE SIDE CUTTING PLIERS**  
No. 654, 6". Also in 7" size.

**CRESTOLOY LINEMEN'S SIDE CUTTING PLIERS**  
No. 1950, 8". Also in 6" and 7" sizes.



When you choose a **CRESTOLOY PLIER** you know you are getting top value and proven performance. After rigorous factory testing for ease of cutting, hardness of blades and strength, each tool that passes these tests is tagged with the certifying tag reproduced above. **CRESTOLOY PLIERS** are available in more than a score of patterns including the five popular types illustrated.



**CRESTOLOY DIAGONAL CUTTING PLIERS**  
No. 942, 6". Also in 4" and 5" sizes.



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*Sign of the Artisan  
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Crescent is our trade-mark, registered in the United States and abroad, for wrenches and other tools. Sold by leading distributors and retailers everywhere and made only by **CRESCENT TOOL COMPANY, JAMESTOWN, NEW YORK**



## new literature

(Continued)

cluding the 200, 300 and 400 series are presented in a 32 page illustrated catalog. Included are illustrations of a number of surface pattern designs which are available in all grades of stainless steel—*Sharon Steel Corp., Dept. AA, Sharon, Pa.*

## Heating Controls

INFORMATION ON AUTOMATIC CONTROLS for heating applications is presented in bulletin 856-A. In addition to illustrating and describing time switches for various uses, the booklet provides full specifications for each unit and typical wiring diagrams. The diagrams illustrate wiring installations ranging from simple night shutdown and weekend omission on through switching from day (high) to night (low) thermostat—*Heating Div., Tork Time Controls, Inc., Dept. AA, Mt. Vernon, N. Y.*

## Hand and Power Grooving Machines

REVISED BULLETIN 76D describes giant power grooving machine, modernized and equipped with pushbutton controls and gearhead motor drive. Full details and specifications for this machine as well as for universal and hand operated groovers are included along with step-by-step illustrations of single and Pittsburgh lock seaming—*Niagara Machine & Tool Works, Dept. AA, 683 Northland Ave., Buffalo, 11, N. Y.*

## Dust Collectors

"HOW MUCH ARE YOU PAYING FOR DUST?" is the theme of a two color brochure describing industrial dust collecting equipment. On-the-job photographs and application stories are used to demonstrate typical installations of both cabinet cloth filter dust collectors and cyclone separator type collectors—*Torit Mfg. Co., Dept. KP-5, AA, Walnut & Exchange Sts., St. Paul, Minn.*

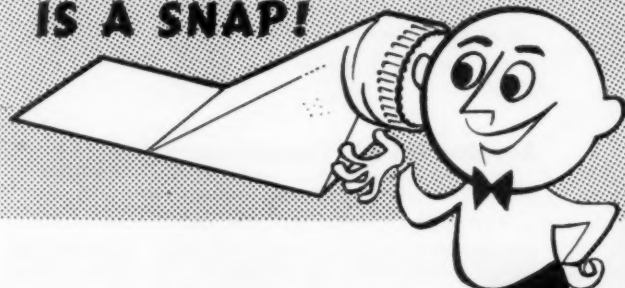
## Angle Iron Shear

BULLETIN contains information on No. 4 angle iron shear said to be capable of cutting  $2 \times 2 \times \frac{1}{4}$  in. stock. The bulletin also describes a bender and a notcher and explains how the three tools can be combined on one stand requiring a total floor space of  $21\frac{1}{2} \times 26$  in. Dimensions, capacities and prices are included—*Whitney Metal Tool Co., Dept. AA, 110-114 Forbes St., Rockford, Ill.*

## Gas Fired Incinerators

MANUAL presents detailed instructions, illustrated with diagrams, for the installation of gas incinerators, gas piping, flues and vents. Also included are instructions

## NEW! QUICKLOCK UNIVERSAL TAKE-OFF IS A SNAP!



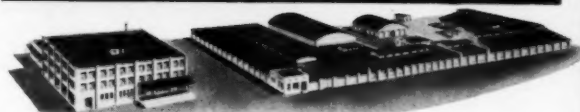
Here is the new **QUICK-LOCK UNIVERSAL TAKE-OFF!** Simply cut the hole, then push this fitting in place and **SNAP...** it automatically locks itself! **Faster assembly means greater profit!**

**QUICKLOCK PIPE NOW AVAILABLE IN 10 FT. LENGTHS!** Ohio Valley Quicklock Pipe is now made in light gauges up to 10 ft., and in shorter lengths up to 24 gauge! ... Do it better, faster with Ohio Valley ... Call your leading wholesaler today!



# OHIO VALLEY

## FURNACE FITTINGS



### Ohio Valley Hardware Co., Inc.



Manufacturing Division  
Evansville 2, Indiana



## new literature

(Continued)

on incinerator operation and maintenance. Copies are priced at 15 cents each—*The Gas Appliance Manufacturers Association*, Dept. AA, 60 E. 42nd St., New York 17.

### Residential Air Conditioners

BULLETIN B-2011 discusses features of "Cool Air" packaged and remote type air conditioners. Keyed photographs identify components and drawings illustrate typical applications. Diagrams and tables show dimensions—*Warren Webster & Co.*, Dept. AA, 1664 Federal St., Camden 5, N. J.

### Stainless Steel Fastenings

CATALOG contains price, stock and delivery information on stainless steel and nylon fastenings including bolts, nuts, screws, washers, etc. Also being offered is a service stock list showing items available for emergency needs—*Anti-Corrosive Metal Products Co., Inc.*, Dept. AA, Castleton-on-Hudson, N. Y.

### Colored Metal Roofing and Siding

COLOR SELECTOR CHART shows 22 standard colors available for "Steelbestos" asbestos protected metal

roofing and siding. The company also offers any combination of colors illustrated (for example, red can be combined with buff or yellow to produce various shades of orange) or can produce a variety of shades of each color—*American Steel Band Co.*, Dept. AA, P. O. Box 565, Pittsburgh 30.

### Clay Duct

REVISED EIGHT PAGE MANUAL describes and illustrates "Ceramiduct" vitrified fire clay duct for perimeter heating. Included is information on the company's new "Angle-Cut" duct with detailed specifications and installation plans. Design information includes floor heat loss factor, duct size needed, and minimum register free area required for buildings—*Straitsville Brick Co.*, Dept. AA, New Straitsville, O.

### Oil Burner Controls

ELECTRONIC CONTROLS for oil burners are described in the September 1957 issue of "Facts 'n Figures." In addition to explaining the functions of various controls, the bulletin gives wiring diagrams, tables of recommended controls based upon firing rate, and control sets available for each of three different burner capacities and according to type of mounting—*The Carlin Co.*, Dept. AA, 912 Silas Deane Highway, Wethersfield 9, Conn.



**STANDARD BRAKES**

Capacities up to 12-gauge sheet metal and bending lengths up to 12 feet.



**FOLDER BRAKES**

The simplicity and ease of operation make this a desirable machine for light sheet metal work. Seams and locks can be made efficiently. Capacity up to 20-gauge in three sizes of bending lengths of 36, 42, and 48 inches. Foot treadle clamp.



**PORTABLE BRAKES**

Set up shop right on the job. Capacity 20-gauge sheet metal in two sizes with bending lengths of 49 and 61 inches.

6095

## Hand Operated BENDING BRAKES

One Man Operation • Quick Adjustment • Rugged Construction



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MANUFACTURING COMPANY  
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AN UMBRELLA OF COMFORT... OR

*Norman Three-Sixty*®

WITH SEALED COMBUSTION



SPOT HEATING

*Norman Three-Sixty*®

overhead gas unit heaters answer your need

Norman Three-Sixty unit heaters — with patented sealed combustion system using 100% outside air for combustion and removing combustion products outside under positive pressure — offer a wide range of applications. They are especially applicable in restaurants and food marts where flue gases threaten contamination, and wherever exhaust fans create a negative pressure.

Norman Three-Sixty Radial-Flo models gently distribute a complete circle of warm air outward and downward to the floor. Uniform temperature is maintained without hot blasts, cold spots, drafts or pockets of stale air.

write us today for descriptive literature

Both types of units are available with inputs of 85,000 and 115,000 BTU/hr. Units of both sizes and both types can be used together to meet a wide range of heating requirements.



For high ceiling and doorway applications, the Norman Three-Sixty Down-Blo units blast heat directly downward through the bottom of the unit. Before striking the floor, the heat spreads to cover a wide area with gentle warmth.

**Norman**®

products  
company

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columbus 12, ohio



IN CANADA: A. D. PALMER & CO., Lethbridge, Alberta • Port Credit, Ontario

For Performance • Dependability • Quality

NEW

Model 400

**Herrmidifier**



Atomizes  
½ gal.  
per hour

Humidistatically  
controlled

### THE FINEST PLENUM HUMIDIFIER BUILT

America's most efficient, trouble-free plenum humidifier, with ample capacity to maintain a relative humidity of 45% to 50% in the average home. Extremely compact, the "400" is easily and quickly installed. Long-life stainless steel housing makes attractive installation free from rust and corrosion. Fan-cooled motor, externally mounted, is isolated from all contact with moisture. All metal construction.

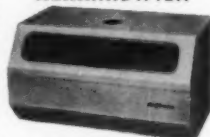
• Quiet,  
trouble-free  
operation

• Only  
one moving  
part

### PERFECT FOR HOME OR OFFICE

... Compact and completely portable, the "654" quietly filters and humidifies the atmosphere. No piping ... simply plug unit into standard 110 volt electrical outlet. Automatically\* maintains pre-selected level of humidity in 6-room home or office suite for less than 3¢ a day. Atomizes approximately 1½ pints per hour. Attractive wrought iron stand included.

### PORTABLE 654 HERRMIDIFIER



\*Automatic Humidistat  
Optional Extra

WRITE TODAY for literature giving complete information on HERRMIDIFIERS  
... America's quality line of residential, commercial and industrial humidifiers. DISTRIBUTOR INQUIRIES INVITED.

**HERRMIDIFIER COMPANY**  
Neffsville 1, Pa.

A Complete Line of Residential, Commercial and Industrial Humidifiers

*we hear that...*



ORVILLE RASHLEGER places a sheet of cold rolled steel on new hydraulic press at Tuck-Aire Mfg. Co. Press is believed to be the largest in use in the furnace manufacturing industry

► PRODUCTION OF MAJOR ELEMENTS of furnaces at the Tuck-Aire Mfg. Co. is being greatly speeded by the use of a 400 ton hydraulic press, according to Clarence Graham, plant manager. "This hydraulic press can stamp out a major metal part every 40 seconds," Mr. Graham stated, "thus eliminating what might otherwise be a critical bottleneck in our production system."

► OVER 1000 VISITORS attended the recent open house held by Crucible Steel Co. of America to celebrate the opening of its new warehouse in the Boston area. The new warehouse, located in the Waltham Industrial Center, has an area of over 41,000 sq ft.

► ONE OF THE OUTSTANDING MEETINGS that took place during Chicago Dynamic Week — observed recently by the city to focus national attention on its building renaissance — was a curtain wall workshop for architects and builders. Leader of the curtain wall group was George Edson Danforth, chairman of the department of Architecture, Western Reserve University.

► THE TRANE CO. acted as host to some 4000 employees and friends during the course of its recent two day open house. Open for public inspection were two of the firm's most recently completed buildings — the engineering technical center and Plant 4, the largest manufacturing facility. Tours were scheduled from 1 through 6 p.m.

► SALES REPRESENTATIVES of the Permaglas Div., A. O. Smith Corp., will now sell the division's full line of domestic and commercial water heaters, air con-



## DOES A HONEYBEE HAVE AN ANSWER TO CANCER?



Mouse and man, worm and wasp, pig and protozoa — these are some of the twenty-eight living things used in the American Cancer Society's nation-wide research program.

Scientists rely most — in 189 projects — on man; next comes the mouse — in 139 studies — and there is even a honeybee helping one scientist in his search for facts that may save the quarter of a million Americans now dying each year of cancer.

Many organisms. Many laboratories. Many hundreds of scientists. Together they make up a balanced program of research with freedom and flexibility, reaching across the country and across scientific

disciplines, to tap the best minds and the best ideas.

From these twenty-eight organisms science is getting facts that may save more lives tomorrow. But what of today? What of you?

With early diagnosis, half of those with cancer can now be cured if treated promptly. If you have cancer, you may well be saved — but only if you give your doctor a chance. Go to him for an annual health checkup . . . not because you feel ill, but because you feel good and want to stay that way.

The worm and the wasp, the pig and the protozoa will provide the answers for tomorrow: for today, see your family doctor.



ditioning and heating units, according to W. T. Halket, marketing director. Formerly they specialized in one of the lines.



MRS. IRENE S. HOLMES accepts keys to Cadillac coupe from R. N. Campbell, president of Bryant Mfg. Co. At right is H. L. Clary, vice president and general sales manager

► BRYANT MFG. CO. recently completed its "Name the Bryant Pup" contest which was open to both dealers and the general public. Winner of the 1957 Cadillac Coupe de Ville, grand prize, was Irene S. Holmes of Griffith, Ind. R. N. Campbell, president of Bryant Mfg. Co., presented the prize to Mrs. Holmes at the

firm's new headquarters office building in Indianapolis after a reception at the Indianapolis Athletic Club. The dealer from whom Mrs. Holmes obtained her entry blank, Gene Miller, owner of Griffith Sheet Metal Co., was awarded \$1000.

► A NEW CONTINUOUS CLEANING and annealing line in the tin mill department and a new continuous coil galvanizing line in the sheet metal department have been placed in operation at Weirton Steel Co., Div. of National Steel Corp. The continuous cleaning and annealing line handles 60,000 lb coils of cold rolled strip steel up to 45 in. wide in tin plate gages and operates at speeds up to 2000 fpm. The sheet metal department's new continuous cold galvanizing line is designed to operate at 300 fpm maximum and is capable of producing galvanized steel in widths from 18 to 48 in.

► GICHNER, INC., Washington, D. C. sheet metal contractor, has started putting a new roof on the Pentagon. Over a mile of copper sheets will be used for the peak of the roof, according to Lawrence Gichner, president of the firm.

► TWO MICHIGAN manufacturers' representatives — Marshall & Wells Co., Grand Rapids, and Air Engineering Co., Kalamazoo — have consolidated their op-

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**...where price is  
an important factor ...**

**and rigid building  
codes exist ...**

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outsell all others.**



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leading  
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Long Island City 6, N. Y.**

# BOOKS

on RESIDENTIAL WARM AIR HEATING--AIR CONDITIONING--and SHEET METAL

(Reprinted from articles originally appearing in AMERICAN ARTISAN.)

Mail order to Keeney Pub. Co., 6 No. Michigan Ave., Chicago 2, Ill.

★ CORRECT PRACTICE IN RESIDENTIAL COOLING -- Volume II -- 132 Pages, 8½ by 11...\$1.50

S. W. Reid tells how to deal with 'Special Air Conditioning Problems'...how to analyze owners "complaints"...diagnose what's wrong in each case...adjust or replace whatever parts are causing trouble...how to convert an existing gravity system to a comfort a.c. system...how to organize or enlarge an air conditioning department, proper forms and best procedures...how to train installers, service men, etc. Valuable "Know-How" available nowhere else! A wealth of data for all engaged in comfort air conditioning!

★ CORRECT STANDARDS FOR FORCED WARM AIR HEATING SYSTEMS -- 88 Pages, 8½ by 11...\$1.50

This series of 17 articles by S. Konzo provides correct standards for evaluating the comfort performance of any forced warm air heating installation...also for improving efficiency of a newly installed system...or for correcting faulty adjustments in existing systems. Being so realistic and practical, the National Warm Air Heating & Air Conditioning Association plans to adopt such standards for the whole industry. Here are "How-to-do-it" facts for installers and service men to start using at once!

★ CORRECT PRACTICE IN ESTIMATING OVERHEAD COSTS AND PROFITS--36 Pages, 8½ by 11...\$1.50

Reprinted articles by N. J. Biddle, Secretary, Michigan Heating & Sheet Metal Assn., who discusses proper methods for accurately estimating materials, labor, and overhead costs...for determining the right bid-price that will insure you proper PROFIT-PROTECTION job-to-job. "Must" reading for dealers and contractors who want to quote on and get future jobs at correct bid-prices, with adequate net profit to themselves.

★ DUCT WORK ESTIMATING TABLES by E. B. Root -- 21 TABLES...\$1.00

Based on cost records covering many thousands of duct jobs, these 21 tables show the minutes of time and pounds of material required to fabricate more than 2,000 different sizes and types of duct sections and fittings. All duct depths from seven to twelve inches, and all widths from four to forty-four inches are covered. You need know only the sizes of the sections or fittings to be made up in order to read off from the tables the material and time needed to fabricate each one.

★ PATTERN DEVELOPMENT FOR AIR CONDITIONING FITTINGS -- 113 Pages, 8½ by 11...\$1.50

Practical methods for developing and cutting patterns for fittings and typical sections used in residential air conditioning, ventilating, and forced air heating systems. Simplified rules by Wm. Neubecker and true geometrical methods for the more complicated fittings, with actual drawings for 56 fittings.

★ CORRECT PRACTICE IN INDUSTRIAL SHEET METAL WORK -- 2nd Printing -- 218 Pages...\$1.50

Contains all basic design and engineering data necessary for the proper planning and installation of fume removal, dust collecting, wood-waste removal, ventilating and other industrial sheet metal systems and equipment. Made up in the main of data published in American Artisan, this book offers sheet metal contractors dozens of practical designing ideas, layouts, installation kinks, tables and charts, contributed by more than 50 of the country's leading industrial sheet metal experts.



## Keeney Publishing Company

6 North Michigan Avenue, Chicago 2, Illinois

erations. The main office for the new organization will be at 521 S. Burdick St., Kalamazoo, with branches in Grand Rapids and South Bend, Ind.



RALPH S. PENN (left), president of Penn Controls, Inc., receives plaque from Eli D. Miller of the National Safety Council

- PENN CONTROLS, INC. was recently presented with a special award by the National Safety Council. The

award was given for the company's safety record of two million man-hours worked without a lost time injury.

- WALLACE ETHERTON has been appointed supervisor of the expanded Quality Control Dept. of Holly-General Co., a division of the Siegler Corp. Mr. Ether-ton will control the department at both the Pasadena and Burbank plants.

- WITHIN 25 YEARS, steel buyers will be filling 50 percent more of their steel needs through warehouses, according to Seymour Waldman, president of Rolled Steel Corp. Mr. Waldman said that his predictions are based on the existing rate of growth in the warehouse field and the outlook for a continuing expanding economy.

- POWERS REGULATOR CO. recently opened new factory branch offices in Columbia, S. C.; Green Bay, Wis.; and Davenport, Ia. Managing the new branches are J. G. Slattery, Columbia; Robert Tustison, Green Bay; and Del Schroeder, Davenport.

- CHASE BRASS & COPPER CO. has moved into its new San Francisco warehouse and district sales office located at 230 Shaw Rd. The new building provides approximately 62,000 sq ft of space.

There's a  
**F·A·S·T·E·R Way**  
When You Use  
**GALVAN ELBOWS**

They Slip Together  
... That Saves Time Too!

Fit  
All  
Standard  
PIPES  
PERFECTLY

**GALVAN**  
**MANUFACTURING COMPANY**  
**NEW ALBANY, INDIANA**



## we hear that

(Continued)

► **STODDARD MFG. CO.** has begun construction of a furnace and air conditioner filter plant in Clarendon, Ark. The Clarendon plant will employ approximately 200 people when completed.

► **ROBERTSHAW-FULTON CONTROLS CO.** has changed the name of its Fielden Instrument Div. to the Instrument Div.

► **BLACK MFG. CO.** has opened a new warehouse in Kansas City, Mo. Thomas Neilson has been appointed manager.

► **REVERE COPPER AND BRASS INC.** has opened a re-distribution center at St. Louis in order to expedite shipment of its tubular mill products to customers in the St. Louis area.

► **THIRTY DEALERS** from the New York City area will enjoy a six-day Miami vacation this month at the expense of the Airtemp Div., Chrysler Corp. The dealers, accompanied by their wives, will stay at the Seville Hotel. Entertainment will include boat excursions, deep sea fishing, golf, night clubbing and a variety of tours. The vacations were presented as prizes to those

dealers who sold a specific quota of air conditioning units during a certain period of the summer season.



D. E. GROVE, Paul Roshon, T. B. Focke, president of National-U. S. Radiator Corp., and Barry Schuliger discuss engineering and the future. The two boys are winners of the company's 1957 scholarship awards

► **NATIONAL-U. S. RADIATOR CORP.** has for the fifth consecutive year awarded engineering scholarships to high school graduates residing in cities where the company has manufacturing plants. The recipients of the 1957 awards are Barry E. Schuliger and Paul R. Roshon, both of Johnstown, Pa.

## PROOF that all Baseboard Diffusers are not alike



**New P-68** with  
28 square inches of free area



Length 18"  
Stackhead Sizes:  
2 1/4 x 12  
2 1/4 x 14

the  
**NEW**  
**P-68**

Visioneered to answer today's huge demand for a shorter, more efficient baseboard diffuser, P-68 with 28 square inches of free air space is taking the lead!

P-68 offers considerable savings in time and labor costs because the installation is so simple . . . yet in operation it compares to other diffusers UP TO THREE TIMES ITS SIZE. The P-68 delivers a perfect diffusion pattern . . . a soft, gentle fan of air . . . ideal for heating or cooling. Highly attractive design and smooth modern lines blend with any baseboard style in new or remodeled homes.

Write for the complete A & A catalog showing our full line of registers, diffusers and grilles for every type of heating and air conditioning installation.

*The* **A & A REGISTER COMPANY**

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## with a BEVERLY THROATLESS SHEAR!

- Capacities to 3/16" in mild steel
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Beverly Shears are the most versatile metal shearing tools you can use. Unique shoulder design permits any cut... rack and pinion gives great power with little effort. Alloy steel body for maximum rigidity and strength. Made in 4 models.

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**We're Specialists In**

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**Electric Motors, Too!**

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• Over 10,000 items... most complete list in the world...carried in stock! You'll find them all in the NEW Harry Alter Dependabook No. 167 for Fall-Winter, 1957-58.

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122 Parkhouse St.  
Atlanta 10, Ga.  
690 Stewart Ave., S.W.

Free Parking and Fast Counter Service at these 4 Big Houses

**we hear that**

(Continued)



WILLIAM McRAE, saw operator, describes operation of a sheet shearing machine to members of his family

► EMPLOYEES of the Boston plant of Joseph T. Ryerson & Sons, Inc., and members of their families, were entertained recently at an open house held in celebration of the company's acquisition of larger quarters at 60 Everett St. in the Allston district. Approximately 900 guests were welcomed by Allen P. Beckloff, general manager, who was host for the occasion. The Allston plant serves New England industries with steel and aluminum sheets, coils and extruded shapes.

The company has also recently opened a new steel service plant at Charlotte, N. C. Construction of the plant, located at Mt. Holly and Chemway Rds., was begun early in 1957. It replaces the former leased quarters in Charlotte from which the company has been doing business in the area since 1953.

► METALS & CONTROLS CORP. has initiated an expansion program at its Versailles, Ky. plant which will more than double present capacity for the production of thermostats.

► GIBSON REFRIGERATOR CO., Div. of Hupp Corp., has launched a new program designed to expedite shipping of air conditioning units. Under the plan, the division uses railroad freight cars specially designed to facilitate loading and simplify handling. When the cars are unloaded at their destination, they are returned directly to Gibson for reuse.

► TRADE-WIND MOTORFANS, INC. recently completed a \$225,000 plant addition at Rivera, Calif. The new addition — the second in three years — increases floor space by 41,000 sq ft.

► A "THEATER-IN-THE-ROUND" was used by General Electric Co.'s Air Conditioning Div. to stage its recent fall distributor meetings. The fall conferences were the first to be conducted on a consolidated product basis by the division. Previously, each of the air conditioning product departments held independent meetings.

## wholesaler doings...

► **HARRY IVANUSKA** has been elected vice president of Climate Equipment and Supply Co. Inc., Rochester, N. Y. wholesaler. He will be responsible for sales and engineering assistance in metropolitan Rochester and the area within a 30 mile radius of the city. Thomas E. Kelly has been elected secretary of the corporation. Edmund A. Wellinghoff, formerly manager of the heating division of Bartholomew and Hall, Inc., has joined the sales staff.

► **A. W. BARBER** has been appointed assistant sales manager for Heating Wholesalers Co. of Des Moines, Waterloo and Sioux City. Mr. Barber, who has been in the heating supply business in the Midwest since 1937, was formerly with Ace Supply Co., Des Moines, where he served as vice president and general manager for several years. Before that he was a partner in the Delavan Engineering Co., Des Moines.

► **A. E. BORDEN CO.**, Boston, will handle distribution of packaged air conditioning equipment for the Worthington Corp. in Maine, New Hampshire, Rhode Island and part of Massachusetts. Wilder Parks has been appointed sales manager for all Worthington equipment. The Borden firm, established in 1923, operates branch offices and warehouses in Portland, Me. and Providence, R. I.

► **THE AMERICAN POTASH & CHEMICAL CORP.** has been appointed a national distributor of "Isotron" refrigerants by Pennsalt Chemicals Corp. The appointment becomes effective January 1, 1958.

► **SMITH-COURTNEY CO.** will handle distribution of Niagara presses, press brakes, shears, etc. in Virginia and North Carolina. The main office of the Smith-Courtney firm is at Seventh & Bainbridge Sts., Richmond, Va. Branch offices are located in Greensboro, Hickory and Charlotte, N. C.

► **E. K. STRAHAN INC.**, 617 Julia St., New Orleans has been named a distributor of dual duct air mixing units by Buensod-Stacey, Inc.

► **GENERAL EQUIPMENT CO.**, Spokane, Wash. distributor, has taken on the Buensod-Stacey line of dual duct air mixing units.

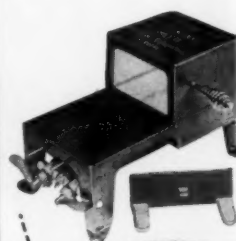
► **FOLLANSBEE ENGINEERING & SUPPLY CO.**, Chicago wholesaler, has moved to new and larger quarters at 7537 N. Clark St. E. Lee Merrill has recently joined the Follansbee firm and will serve as general manager. Mr. Merrill was formerly sales manager and vice president of the Monroe Div. of Dearborn Stove Co.

## High, efficient heat

*johnson*  
Bench Furnaces for soldering coppers, heat-treating, tempering, annealing, case-hardening

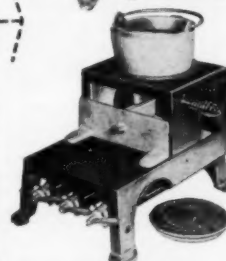
### No. 101

A powerful, economical bench furnace for any carbon steel tool or small metal parts work. No blower is needed, hence no muffle. Johnson patented curved hood forces return blast over work. Equipped with baffle plate, shut off valve and pilot light. Firebox 3¾" by 4½" by 5½" 13,000 BTUs per hour per burner.



### No. 118 Combination

Ideal for all around shop use. Has 22-lb. capacity melting pot for soft metals such as lead and babbitt. Shelf in rear of firebox supports and protects points of soldering coppers. Johnson patented curved hood. Refractory lined firebox 6¼" by 5" by 6½". 13,000 BTUs per hour per burner. Baffle plate maintains heat and even temperature.



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**Johnson Gas Appliance Company**  
580 E Avenue NW, Cedar Rapids, Iowa

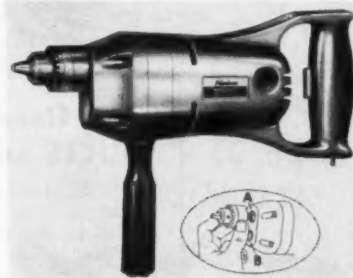
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If it burns gas look to Johnson  
Since 1903

## Save Time and Labor on a Variety of Operations

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## MODERN 2-SPEED POWER DRILL SIMPLY MOVE THE CHUCK . . . THAT'S ALL!

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**CAPACITY**  
GENUINE GEARED  
CHUCK  
**\$29.95**  
Complete



Here's a MODERN item for modern shops! A 2-speed power drill, husky and powerful, but not bulky. It's easy to change speeds . . . just shift from Power Takeoff "A" (1000 RPM) to Power Takeoff "B" (3000 RPM). This is the ONE tool with just the right speed for every job — drilling, sanding, wire brush work, or rotary sawing. Write us for literature.

## MODERN MFG. CO., INC.

680 Davisville Road

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Smith's 180° Universal Brake is the answer to the need for one low cost tool that can handle a wide variety of bending and forming jobs with speed and accuracy. Designed to permit selective bending of portions of a workpiece without restriction, the Universal Brake's application and use is literally unlimited. It will handle 18 gauge mild steel 26" wide to 7 gauge 1 1/4" wide, at any angle, up to 180° in one operation. It has adjustable angle stops and back gauges to assure precise duplication of work pieces, making it a very valuable production tool. Write for illustrated circular and more details.

U.S. Patent No. 2,651,349

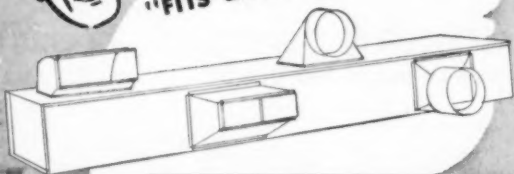
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"SAVES YOU MONEY"



"EASY TO ASSEMBLE"  
"FITS and LOCKS TIGHTLY"



SEND FOR  
*New*  
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MONCRIEF offers a complete line of Prefabricated pipe and fittings for any type of Heating or Cooling system. All precision made, at low mass production cost. Prompt shipment from Atlanta Factory makes MONCRIEF the South's most dependable source of supply on Duct Work, Registers, Grilles and Diffusers. Save time and money by ordering from your jobber TODAY.

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**FURNACE COMPANY**

P. O. BOX 1673

ATLANTA, GEORGIA

## wholesaler doings

Continued

► **LAFAYETTE STEEL & ALUMINUM CORP.**, Chicago distributor of tin mill and sheet steel products throughout the Midwest, has been appointed a distributor of aluminum sheet and coil by Olin Mathieson Chemical Corp. The Lafayette company will cover Illinois, Indiana, Wisconsin and Iowa as well as parts of Ohio, Michigan, Kentucky, Missouri and Minnesota.

► **THE W. H. KIEFABER CO.**, 40 Keowee St., Dayton, O. has been named air conditioning wholesaler for Copeland Refrigeration Corp.

► **HYDRAQUIP CORP.**, 6645 Navigation Blvd., Houston, Tex. has been appointed exclusive sales representative for Tuthill pumps in the Texas-Gulf Coast territory.

► **NEW COLUMBUS, O. DISTRIBUTOR** for Buensod-Stacey dual duct air mixing units is H. Dewey Jones Co.

► **SID HARVEY INC.** has opened a new branch in Richmond, Va. to handle replacement parts for oil and gas burners. The new operation is located at 2215 N. Lombardy St. Jerry Skakal has been named manager.

## "CORRECT PRACTICE in OIL HEATING"

NOW AVAILABLE TO YOU!

A complete reprint of the valuable series

by J. J. Mirabile

This practical series covers every angle of oil burner work, including arrangement of shop . . . stocking of parts . . . record-keeping . . . installation procedures . . . the handling of crews . . . how to make heating surveys . . . how to size combustion chamber . . . how to install thermostat . . . how to start the burner . . . how to use testing instruments . . . and how to operate a service department. It contains, as well, a complete list of causes and cures of oil burner troubles that will serve as a reliable guide in making service calls.

Every shop handling oil burner jobs should own this book. Full size, 8 1/2 by 11 inches — 57 pages of practical helps. Send \$1.00 for a copy to the address below.

**KEENEY PUBLISHING COMPANY**

6 No. Michigan Avenue

Chicago 2, Ill.



## merchandising ideas

► To BOOST COOLING SALES ahead of season, Bryant-O'Connor Co., Inc., Wichita, Kans. distributor, has prepared a four page form for dealers to present to purchasers of new heating systems. Titled "Incentive for Better Living," the folder is actually a cooling bid which contains space for a complete estimate and other information. The form — which may be personalized with the prospect's name on the front cover — begins with the words:

"As an incentive to better living, we propose to furnish and install the following equipment for Mr. .... at ..... in accordance with conditions and specifications as set forth below."

Subtitles on the form are: Equipment and Location, Installation, Responsibility, Warranty and Service, Installation Schedule, Price and Terms, Acceptance and Approval. On the back page of the form is a squared off graph on which can be drawn a diagram of the customer's home floor plan and duct system.

► DEALERS OF THE ARMSTRONG FURNACE Co. are finding the company's "visualizer" a helpful sales tool. The "visualizer" — a hard backed portfolio illustrated throughout — begins with a discussion of the health and comfort giving benefits of air conditioning and takes the prospect through a visual installation story. Features of both "Split-System" and "Frigipak" units are discussed and applications are illustrated.

► YOUNG & BERTKE Co., Cincinnati sheet metal contractor, recently mailed its first issue of the "Metal Wrighter" to customers and prospects. Designed for monthly mailing, the "Metal Wrighter" is a giant size post card printed in two colors and featuring the current month's calendar. Also featured is a photograph of some unusual product made of sheet metal by the contractor together with a brief description of its function. Typical specialties the firm is capable of fabricating are listed and it is pointed out that the company acts as designers, engineers, manufacturers and installers of all types of sheet metal parts and products.

► AS PART OF ITS LONG RANGE "grass roots" dealer support campaign, Thatcher Furnace Co. is offering its dealers a large number of new sales promotion pieces. Available are double postcard mailers, door knob hangers, throwaways and envelope stuffers. Some of the sales aids are keyed for seasonal use, others for year 'round use. Many of the items stress the savings a homeowner can realize if his heating system gets the periodic care it needs from an experienced and skilled heating equipment dealer. Homeowners are urged to contact their dealers immediately for heating system checkups.

# 4 TYPES

## HI-RECOVERY®

(4 BATHS PLUS)

### OIL-FIRED

### HI-RECOVERY QUIET AUTOMATIC

OIL FIRED WATER HEATER

## HOT WATER HEATERS

- GLASS LINED  
30 gallon with 120 gallon hour recovery
- COPPER LINED  
30 gallon with 120 gallon hour recovery  
45 gallon with 180 gallon hour recovery
- A.S.M.E. GALVANIZED  
30 gallon—35 gallon—and 44 gallon for  
Motels, Apts., State and Government Jobs
- TWIN COIL JOBS  
for Laundrettes and Big Buildings

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STANDARD  
E-Z-ON  
DAMPER REGULATOR  
NO. 27

### FOR WINTER HEATING



### AND SUMMER COOLING

## E-Z-ON

### DAMPER REGULATORS

Slide this 16 gauge steel regulator over the scribed center line. Just one hammer blow drives the sharp prongs through damper. That's all! No rivets — no drilling — no screws — E-Z-ON saves up to 60% dampers make-up time yet actually does the job better . . . saves you money, too.

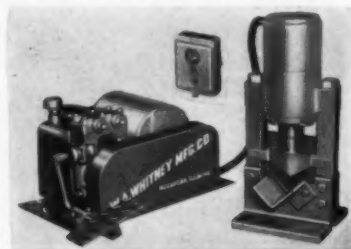
*save installation  
time and money*

**E-Z-ON INDICATOR HANDLE** gives you a head start in air conditioning installation. Makes for simple damper changing from winter to summer setting. Clearly shows damper position.

M. A. GERETT CORP.

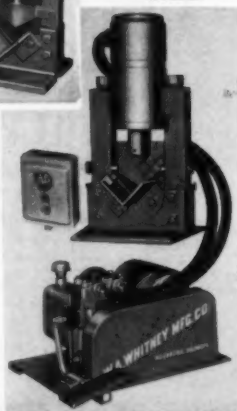
724 W. Winnebago St., Milwaukee 5, Wis.  
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Stocked in Canada by THERMIDARE CORP., 79 Cumberland St., Toronto

**BETTER TOOLS MEAN BETTER WORK  
AND WHITNEY  
GUARANTEES BOTH!**



▲ NO. 95B  
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PUNCH

▼ NO. 607  
ANGLE  
IRON  
SHEAR



Punch Capacity — 12½ tons  
⅝" hole thru ¼" iron, ⅞"  
hole thru 3/16" iron, 2" hole  
thru ⅛" iron. Shear Capacity  
— 4" x 4" x ¼" Angle Iron,  
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½" Squares. Cycle Time 6  
Sec. By means of two way  
selector valve, operator may  
change from Angle Iron Shear  
to Hydraulic Press  
or vice versa.

**W. A. W HITNEY MFG. CO.**  
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**For louver ventilation,  
use weatherproof  
Swartwout Airlouvers  
—one, or a bank of them**



**Virtually tailor-made to fit your  
need, at economical standard cost**

The fixed Airlouvers in the upper wall of this filter house (of a test cell building) present a pleasing uniform pattern because of Swartwout's wide range of sizes. Made also in adjustable style, featuring positive closing and quick change of blade position, with choice of operating methods. Write for Bulletin ALO-J.

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**Swartwout** ROOF VENTILATORS AND  
VENTILATING LOUVERS

ALSO AUTRONIC PROCESS CONTROL EQUIPMENT

## *appointments . . .*

► **H. M. CARNAHAN** as director of sales for Penn Controls, Inc. Mr. Carnahan has spent more than 20 years in the heating and air conditioning industry. At one time he was associated with American Radiator and Standard Sanitary Corp. and he has also been with the Airtemp Div., Chrysler Corp., where he served as sales manager of residential heating and air conditioning equipment.



H. M. Carnahan



Richard B. Schmidt

► **RICHARD B. SCHMIDT** as sales promotion manager for Mueller Climatrol. Mr. Schmidt joined the Mueller sales organization in 1947 as a sales correspondent and later became a territorial representative. Prior to his recent promotion he was Milwaukee sales manager.

► **HARRY J. POTTER** as manager of sales of the Field Control Div., H. D. Conkey & Co. Clarence W. Potter, for many years manager of sales for the division, has retired from active participation but will continue in a consulting capacity.

► **KENNETH O. RALPHS**, formerly sales manager of the Timken Silent Automatic Div. of the Scaife Co., as sales manager of the residential division of York-Shipley, Inc. Mr. Ralphs has been in the heating business since 1933.

► **W. W. EATON** as manager of Fram Corp.'s Domestic Oil Burner Div.

► **WILLIAM A. BOURS III** as director of sales of the "Freon" Products Div., E. I. du Pont de Nemours and Co. Thomas D. Johnson, Jr., will succeed Mr. Bours as assistant director of sales.

► **LESTER C. HILL** as assistant sales manager of the Pittsburgh Crucible Sales Div., Crucible Steel Co. of America. Mr. Hill was formerly sales manager for the H. K. Porter Co., Inc.

► **CHARLES L. TRACEY** as sales manager for domestic water heater products for the Permaglas Div., A. O. Smith Corp. Frank Toney replaces him as district manager in Atlanta, Ga. Hal Merkel has been named

Statement of Ownership and Management of  
AMERICAN ARTISAN  
for October 1, 1957

The following is a statement of ownership, management, etc., as required by the act of Congress of August 24, 1912, as amended by the acts of March 3, 1933 and July 2, 1946 (Title 39, United States Code, Section 233) of American Artisan, published monthly at Chicago, Ill., for October 1, 1957.

1. The names and addresses of the publisher, editorial director, editor, and president are:

Publisher: Chas. E. Price, Glencoe, Illinois.

Editorial Director: C. M. Burnam, Jr., Chicago, Illinois.

Editor: C. M. Barnes, Chicago, Illinois.

President: Chas. E. Price, Glencoe, Illinois.

2. The owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual member, must be given.)

Keeney Publishing Company, 6 North Michigan Avenue, Chicago 2, Illinois. Stockholders: W. J. Osborn, Fairfield, Connecticut; Chas. E. Price, Glencoe, Illinois; Robert A. Jack, Cleveland Heights, Ohio.

3. The known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. Paragraphs 2 and 3 include in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

Chas. E. Price, President

Sworn to and subscribed before me this 19th day of September, 1957

(SEAL)

Lydia Thomas

[My commission expires November 22, 1959]

PW . . .

Better check on  
the important  
message on page  
89 of this issue.

Dan

## OIL HEATING MEN—

### BE AN EXPERT IN YOUR FIELD!

- ◆ The oil heating industry has great need for men with specialized training.
- ◆ The *Boston School of Advanced Oil Heat Training* offers a 3-day course covering: proper firing rates—combustion chamber design—baffling of boilers—draft control—mating of air and oil patterns—nozzle application tests.
- ◆ For men with one or more years experience in the installation and service field *only*.
- ◆ This course is offered monthly during most months of the year.

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Manufacturers—Central National Bank Bldg.  
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for

## SPECIFICATION and BUYING INFORMATION

*Use your complete, up-to-date*

### JANUARY DIRECTORY ISSUE

Your job will be a lot easier if you'll keep the indispensable January Directory issue of American Artisan constantly available for handy reference. It's one of your most valuable tools — one which will save you many hours of looking up the products you need for your various jobs. It's the ONE complete, up-to-date, readily accessible source of product information on who makes the blowers, snips, furnaces, fittings, specialties of all kinds, etc., you need — and where they're located. They're identified by trade names, too. EVERY product is listed, alphabetically arranged and printed on a distinctive yellow stock for easy reading and reference. Keep it handy . . . it's a time saver.

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Intensive training in our fully equipped modern training shops and laboratory. Student receives practical instruction in Service, Repair and Installation on all types of equipment. Learn-By-Doing job experience supplemented by Training Films and classroom demonstration.

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Birmingham, England

## appointments

(Continued)

sales manager of heating and air conditioning products. New sales supervisors are Dick Clark, who will cover the Albany, N. Y., Connecticut and western Massachusetts area; Lee Cornell, who will serve eastern Pennsylvania, Baltimore and Washington; and Lee Zoeckler, who will cover the Chicago metropolitan area. Jack Pohle, who formerly covered Colorado, will extend his coverage to include Montana and Utah.



Walter A. Wendler



Robert I. Pearce

► WALTER A. WENDLER as vice president in charge of sales and Robert I. Pearce as sales manager for Amana Refrigeration, Inc. The appointments follow the resignation of J. A. Rishel, Jr., sales manager for the past two and a half years. Mr. Wendler joined the firm in 1942 and has served in various capacities. Mr. Pearce has been with the company since 1955.

► FRED MULCAHY as assistant sales manager for Delavan Mfg. Co. Mr. Mulcahy, formerly employed by National-U. S. Radiator Co., will head oil burner nozzle and accessory sales in both the United States and Canada.

► EDWARD E. HOWARD as branch manager of the newly opened Albuquerque sales office of American Blower Div. of American-Standard.

► FRITZ C. HYDE, JR., as manager of New York district sales for Revere Copper and Brass Inc. Mr. Hyde succeeds William F. Otto.

► ROBERT W. PIERCE as manager of the recently opened New England sales office of the aluminum division of Olin Mathieson Chemical Corp. The new office serves Massachusetts, Rhode Island, Maine, New Hampshire and Vermont. John M. Welch has been named regional sales manager of the Chicago office which will serve parts of Illinois, Indiana, Iowa and Minnesota as well as the state of Wisconsin. Other new regional sales managers are Fred H. Edgar, Detroit, and Forrest F. Tiffany, Cincinnati. The Detroit office will serve the state of Michigan and parts of Ohio, Pennsylvania, New York and West Virginia while the Cincinnati office will cover parts of Ohio,



## appointments

(Continued)

Illinois, Indiana and Missouri as well as the state of Kentucky. A. F. Meyers has been named district sales manager in Philadelphia and will cover Maryland, Delaware, District of Columbia, Virginia and West Virginia as well as parts of Pennsylvania and New Jersey. The Dallas office, serving Texas, Oklahoma, Arkansas, Louisiana, Mississippi and western Tennessee, will be under the supervision of W. P. Liljestrom, district sales manager. James H. Wright will head the Houston sales office and R. B. Polonus will be in charge of the Memphis office.

► **WILL J. CHAPPELL** as general product sales manager for Bryant Mfg. Co., a newly created position. Mr. Chappell, who has been product sales manager at Indianapolis since 1956, takes over sales supervision of all gas and oil fired heating products manufactured by the company. For 26 years he held various sales positions with the Timken Silent Automatic Co. and the Scaife Co.



Will J. Chappell



L. P. Hanson

► **L. P. HANSON** as sales manager of Barry Blower Co. For the past 27 years Mr. Hanson has been associated with United States Air Conditioning Corp., where he was successively sales engineer, chief engineer of the marine division, vice president in charge of sales, administrative vice president and vice president in charge of engineering.

► **PHILLIPS W. BERG** as a regional sales manager for Tuthill Pump Co. Mr. Berg will have charge of the company's sales organization in Indiana, Michigan, Ohio, western Pennsylvania and Kentucky.

► **JOHN C. HENSEL** as sales engineer covering the northeastern New York State territory for Thatcher Furnace Co. Mr. Hensel succeeds Tom Griffin.

► **RUSSELL H. THOMPSON** as assistant sales manager in Minnesota for Rolled Steel Corp. He has been assigned to the Minneapolis sales office.

► **JOHN YOUNG** as district sales representative in Kansas, Missouri and southern Illinois for Copeland Refrigeration Corp. Named district sales representa-

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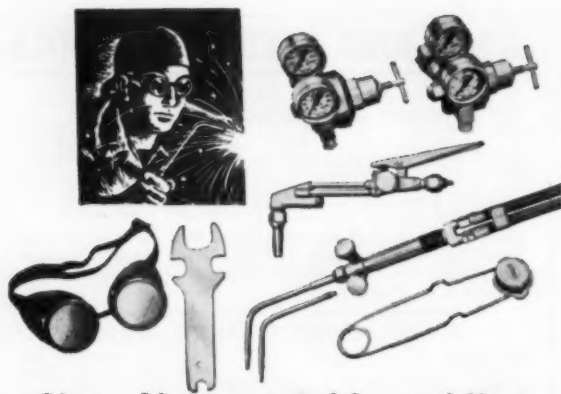
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## appointments

(Continued)

tive to cover Nebraska, Iowa, northern Illinois and southern Wisconsin is Donald R. Macklem. Louis A. Wallace has been named field representative for Texas and Oklahoma.



William T. Brent



R. E. Rutherford

► WILLIAM T. BRENT as sales promotion manager for Temco, Inc. R. E. Rutherford has been appointed Mid-South regional sales manager.

► BARNHART-DWYER Co., 2500 Garfield Ave., S. E., Albuquerque, N. Mex. and Pedley Equipment Co., 314 21st St., S. E., Charleston, W. Va. as representatives for Buensod-Stacey, Inc., handling the sale of dual duct air mixing units and other air conditioning equipment.

► RICHARD T. GOLDSMITH & ASSOCIATES, 709-11 Forsyth Bldg., Atlanta, Ga. as representative for the Patrol Valve Co. in North and South Carolina.

► ARCO ENGINEERING Co., 3135 S. Preston St., Louisville, Ky. as manufacturer's sales representative for Carrier Corp. in the Louisville area. The Arco firm will handle the sale of unit heaters as well as heating and ventilating equipment.

► LEONARD M. CALL as merchandising manager for the Airtemp Div., Chrysler Corp. In his new position Mr. Call will head all advertising and sales promotion activities pertaining to residential and commercial air conditioning equipment. On the staff of M. B. Smith, director of sales planning, he will maintain headquarters in Dayton. He was formerly assistant advertising and sales promotion manager for General Electric Co.'s Air Conditioning Div.

► ROBERT W. RAY, J. V. Dean and R. A. Bedau as regional sales managers for Tamco Corp. With headquarters in Petaluma, Calif., Mr. Ray will manage the northwestern Rocky Mountain area, excluding Colorado. Mr. Dean, based in Los Angeles, will cover southern California, Arizona and New Mexico. Mr. Bedau will operate out of Muskegon Heights, Mich., through a territory including Michigan, Wisconsin, Illinois, Ohio, Indiana and Kentucky.

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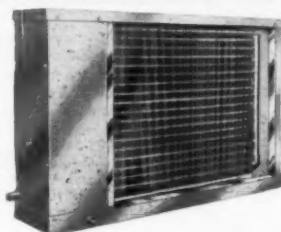
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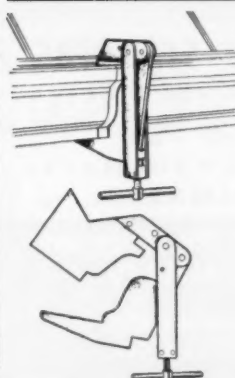
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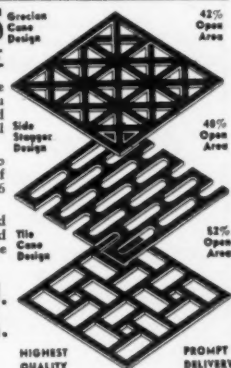
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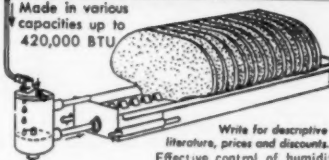
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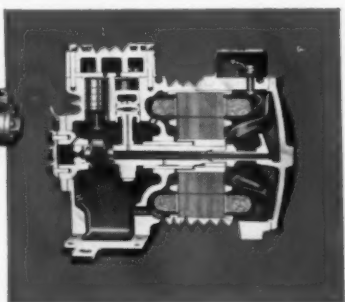
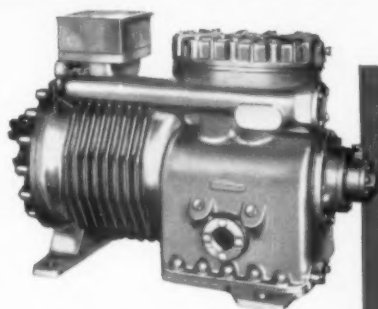
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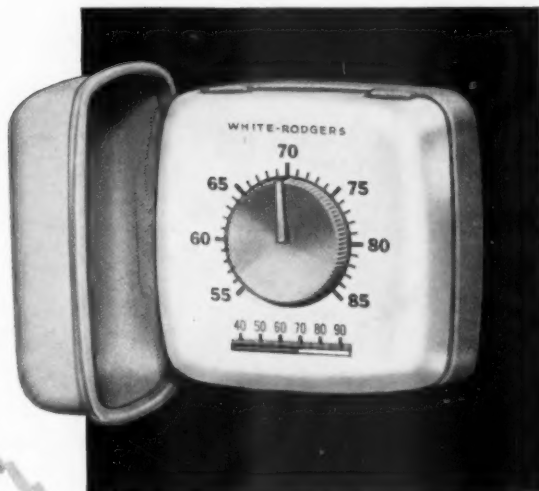


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